



Limited Supply for Sprinkler Systems

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What is a limited supply for sprinkler systems?

The intent of the limited supply sprinkler system concept is to provide fire protection for certain buildings that do not have access to a public water system capable of providing fire flow, or that do not otherwise have access to a water supply for a sprinkler system.

How is that different from a full NFPA system?

A limited supply sprinkler system meets all of the requirements for a NFPA 13 sprinkler system, with the exception that an independent water supply is created to provide water flow for 4 heads. The pipe sizing must be determined based a full NFPA design.

The sprinkler system is designed so that the system can be connected to a public water system when and if access to such a system becomes available to the protected premises.

The system shall include a fire department connection to the sprinkler system and fire department access to the water supply.

A listed fire pump is not required for limited supply systems.

Who can use a limited supply system?

There are three occupancy hazard classifications as defined by NFPA 13 that can use the system-

1. Light Hazard Occupancies
2. Ordinary Hazard Group One Occupancies
3. Ordinary Hazard Group Two Occupancies

IF: the maximum adjusted fire flow (after the credit for sprinklers, fire alarm and credit or surcharge are applied) does not exceed 500 gpm with is no high piled combustible storage. Only wet systems can use the limited water supply.

How is the sprinkler system designed?

The system shall be designed using hydraulic calculation methods. Hydraulic design shall not be less than 1500 sq. ft. unless the building is of smaller area.

The design water supply shall be assumed to have a static pressure of 30 psi and be capable of supplying 750 gpm at a residual pressure of 20 psi, except that a higher static pressure may be used if an established water system in the vicinity would provide greater head pressure if extended to the site.

The system design requirements and will extend, at a minimum, from the base of the riser to a point 3 feet beyond the foundation.

The underground supply shall be designed so that connection can be made to a subsequently installed water system main or an upgraded on-site water supply.

Calculations shall be carried through to a property line with a street or other logical location of a future water main.

The system shall be equipped with a fire department connection.

How will the amount of water be determined?

The minimum amount of storage shall be 3000 gallons.

Water demand for the limited water supply sprinkler system shall be determined by hydraulic calculation and have a reserve of 1000 gallons added.

If the water supply will also supply domestic demands, 500 gallons shall be added to the hydraulic calculations and reserve capacity.

The number of heads used for the calculation to determine the amount of water to be stored on site shall be 4 heads. Calculations shall be for not less

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than 4 heads for a density of not less than .2 gpm per square foot, per area served by those 4 heads.

The *duration* of the limited water supply shall be a minimum of 30 minutes.

Provision shall be made for fire department access to the water supply. Protection against freezing shall be provided.

Is a water tank always required?

A well can be used as a water supply. If the well will supply only the sprinkler system, 100% of the capacity can be applied to the sprinkler demand.

Well pumps used for purposes other than sprinkler protection shall not have more than 50% of their capacity credited to the limited water supply.

How will pressure be maintained for the sprinkler system?

Pressure for the sprinkler system must be hydraulically determined. When water is also supplied to the domestic system, a separate pump must be provided for the sprinkler system.

Electric pumps must operate from a separate dedicated power circuit. The pump system shall be designed to automatically activate upon a pressure loss.

Does the Limited Supply for Sprinklers require monitoring?

All functions of a limited supply sprinkler system and water supply shall be monitored by an automatic fire alarm system connected to an approved central station monitoring station. Such functions include, but are not limited to water flow, pump start, low water, valve tamper.

Do I need a pumphouse?

Pump houses must meet the requirements of NFPA 20. They must be separate from the building being protected by 50 feet or be one-hour construction with fire sprinkler protection.

Pump houses must be heated so that the heat source does not drop below 40 degrees Fahrenheit. Emergency lighting must be provided.

If the pump is located within the structure a two hour fire barrier shall be provided and the room shall be protected by sprinklers.

Who can design and permit a limited supply for sprinkler systems?

A Washington State Licensed Fire Sprinkler Contractor shall design the fire sprinkler systems water supply.

The civil plans unless prepared by a Washington State Licensed Fire Sprinkler Contractor cannot be used for the underground installation.

Plans are required and a permit is to be issued before work commences. Work that is done without a valid permit or consent of the fire marshal may be charged double inspection fees.

Underground work must be completed by a contractor with a 'U' license. Work may not be covered prior to inspection.

Plans are required and a permit is to be issued for the design and installation of an automatic fire alarm system.

I Still Have Questions...

Call the fire marshal line at (360)754-3355 x6477.

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