

Changes in the 2013 Edition of NFPA 20

In this issue of e-TechNotes we will discuss what is new in the 2013 edition of NFPA 20. This summary will explain the changes that are most important in the opinion of the editor. This will not be a list of every change to the standard, but is intended to help everyone understand the big issues. The following items were changed:

Water Mist Pumps (throughout the document) - A number of changes were made throughout the document that clarified the rules for multiple small volume positive displacement pumps used as a single pumping unit for a water mist system. In previous editions, it would appear that each of these individual pumps was to be treated as its own fire pump, when really this is a single pumping unit working to increase the pressure of the water in a system. This edition will clarify issues such as these single units can have one controller and one sensing line. This will help NFPA 20 work with NFPA 750 and listed water mist systems.

Within Sight of (3.3.25) - There are a number of locations in NFPA 20 where it specifies that two different parts of the pump installation need to be "within sight" of each other. This term was defined as each of the items being visible and not more than 50 ft distant from the other item.

Plans (4.2.3.1) - A new requirement was added to the standard for plans to be submitted that are drawn to scale. A list of 14 items that need to be included on plans is also now in the standard. These are the pieces of information that we have typically always provided on pump installations, but it turns out that the requirement was never actually in the standard.

Age of Water Supply Tests (4.6.1.2) - A new section was added to require that water supply tests used to determine the adequacy of water supplies be done within 12 months of the submission of the working plans. The AHJ has the authority to accept older tests if they believe the information to still be valid.

Space in the Rump Room (4.12.1.1.6) - The pump room needs to be designed with space for:

- Clearance between components for ITM
- Clearance between components and walls for ITM
- Clearance between components and energized electrical equipment
- Orientation of the suction pipe

While this is not news for anyone in the fire protection system installation business, this section was seen as important to include to show architects and

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specifying engineers that we really need some space in a pump room. Without actually seeing a requirement "in the code", many of these design professionals have been refusing to provide us with the space we need in the pump room.

Suction Pipe Water Velocity (4.14) - The standard has said for years that the maximum velocity for water flowing close to the pump suction flange (within 10 pipe diameters) is 15 ft/sec in suction pipe. The standard had intended for people to meet that rule by selecting appropriate pipe sizes for different size pumps and Table 4.26(a) was provided for this purpose. But some AHJ's were noticing that when you used the pipe sizes in Table 4.26(a), you ended up with velocities of 15.1 ft/sec and 15.3 ft/sec in some cases. These AHJ's were making people upsize the pipe, which was never the intent of the committee. The only purpose of the 15 ft/sec rule was to let people know how the suction pipe sizes in Table 4.26(a) were determined in the first place. Since the requirement was being abused by many AHJ's, it was deleted. Now the standard just has Table 4.26(a) without any specific velocity associated with the use of the pump.

Elbows and Tees in Suction for Horizontal Split Case Pumps (4.14.6) - New three dimensional (isometric) figures were added to the annex to show correct and incorrect combinations of tees and elbows. This should help clarify the issues around which elbows have a centerline perpendicular to the shaft and which elbows have a centerline parallel to the shaft.

Valves to Test Headers (4.20.3.3.1) - The valve on the pipe to the test header needs to be installed even if the test header is not in an area subject to freezing. This valve needs to be supervised closed (4.16.2). Having this valve in important for the safety of people working at the test header and to make sure that people don't intentionally impair a fire protection system by opening valves at the test header and taking water away from the sprinklers or standpipes being used to fight a fire.

Test Header Location (4.20.1.4) - The test header can be indoors as long as it is not in the pump room and water can be discharged to a safe location during testing.

Accuracy of Meters (4.20.2.10) - For flow meter lines that are looped back to pump suction or water tanks, a means will need to be included downstream of the meter to test the flow so that the accuracy of the meter can be checked.

This means could be a different test header from the one used to test the pump or it could be a pipe connecting the discharge from the meter to the pump's test header. Another option would be an air gap with an opening into which a pitot gage could be inserted to obtain a reading before the water goes back into a tank or drain.

Rewrite of Chapter on High Rise (Chapter 5) - The chapter on high-rise buildings (any building with more than 75 ft (23m) from the lowest level of fire department vehicle access to highest floor for human occupancy) was revised to be clear about which rules applied to all high riser buildings and which ones



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only applied to super tall high-rise buildings. Sections 5.1 through 5.4 will apply to all high rise buildings. Sections 5.5 and 5.6 will apply to "Very Tall Buildings". There is no specific definition of "Very Tall Buildings", but there is an implication that these are the buildings that are too tall for the fire department to get reasonable pressure to the top from the street. Each jurisdiction's fire department will need to determine how tall that is based on their pumping equipment.

Tanks for Very Tall Buildings (5.6.1) - In very tall buildings (discussed above) where the primary source is a tank, you need two or more tanks (compartments in a single tank are okay if they are valved separately). The tanks have to be sized so that when any one tank is out of service, you still have at least 50% of the duration demand available. Each tank needs an automatic refill valve and a manual refill valve. The refill valves have to be sized and arranged to provide the fire protection system flow demand. The automatic and manual fill valve combination for each tank or tank compartment shall have its own connection to one of the following:

- A standpipe riser that is supplied with a back-up fire pump
- A reliable domestic riser sized to meet the requirements of 5.7.1.4 (full flow demand of system)
- Redundancy for Pumps in Very Tall Buildings (5.6.2) – For pumps serving zones that are partially or wholly beyond the pumping capability of the fire department, do either of the following:
 - Provide a back-up pump (fully meeting all system demands)
 - Provide an auxiliary means of meeting all of the system demands (acceptable to the AHJ)

Reliable Power to Electric Motors (9.3.2) - The annex note that discusses the attributes of a "reliable" power supply was modified to remove the discussion of power outages during storms. Storms should be considered in the overall reliability of power supplies. However, it is not the intent of NFPA 20 to require stand-by power for all fire pumps. So, an AHJ is not intended to require back-up power just because a storm or other rare event might occur. The user is reminded that the impairment procedures of NFPA 25 could be used when power outages occur rather than forcing everyone with an electric motor driven fire pump to install a generator.

Limited Service Controllers (10.7) - Rather than eliminate limited service controllers, the committee upgraded the circuit breaker that can be installed in these devices. Now, the only difference between "full service" controllers and limited service controllers will be the isolation switch. This will probably bring limited service controllers so close to the price of full service controllers that their use will essentially disappear.

Dikes and Fuel Tanks (11.4.1.2.4) - The committee clarified a change that they tried to make last cycle to state that dikes are not required when double-wall tanks are used.

Acceptance Test Form (14.2.6.4) -The form in the annex of the standard was updated with all of the new requirements since the previous edition(s). While this form is in the annex and is not legally enforceable, many contractors like to use it. This form is available through the NFSA Resource Center.

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