NFPA 25
FAQs

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1. **When inspecting an old system (60 years or older), when/where does NFPA 25 require a system to be upgraded to present standards?**

NFPA 25 does not require any system modifications to bring an old system up to present standards. There are exceptions however. If the authority having jurisdiction determines that an unsafe condition exists, Section 1.2 permits corrective action in excess of the minimum requirements of the standard. Another exception to this requirement can be found in Section5.3.1.11.1 which states "sprinklers installed prior to 1920 shall be replaced"

2. **If an existing system is found to contain installation deficiencies, where in the standard does NFPA 25 require corrective action?**

NFPA 25 is not intended to address installation deficiencies. In fact, Section 1.1 states "Where a system has not been installed in accordance with generally accepted practices, the corrective action is beyond the scope of the standard"

3. **Am I required to have a license in order to perform testing or maintenance on a water based system?**

Many state or local jurisdictions require licensing or certification, NFPA 25 does not. Section 4.1.2.3 states that "These tasks shall be performed by personnel who have developed competence through training and experience".

4. **What type of tests, if any, are required when a system component is replaced or rebuilt?**

Section 4.5.6 requires testing in accordance with the original acceptance test for that component or subsystem. This information can be found in the installation standard for the type of system involved.

5. **Is an obstruction investigation required every five years?**

There are two activities that are related to obstructions in Chapter 13 that require our attention. The first is an investigation that is actually more of an “inspection” as described in Section 13.2.1 that must be conducted every five years. While the sprinkler system is shut down for the purpose of internal valve inspections (See Table 12.1), the flushing connection at the end of one crossmain and a single sprinkler at the end of one branchline must be

removed and the inside of the piping is then “inspected” for the presence of organic and inorganic material.

In Section 13.2.2 a more comprehensive obstruction “investigation” must be conducted when any of the 14 conditions listed in that section are present. This more comprehensive obstruction “investigation” is conducted by internally examining the following four points in a system: system valve, riser, crossmain and, branchline and is only required when one of the 14 problems listed in Section 13.2.2 is present. This obstruction investigation is not a routine procedure, it is only needed when a problem exists. If any obstructing material is found, a complete flushing program must be conducted to remove any remaining obstructing material.

6. Are bags (paper or plastic), acceptable to protect sprinklers from accumulation of dust or other potential contaminants?

Bags are only permitted when sprinklers are protecting spray coating areas. Plastic bags must have a minimum thickness of 0.003 in. (0.076 mm) or small paper bags may be used. Sprinklers protecting areas other than spray coating hazards are not permitted to have bags placed over the sprinklers.

7. What is meant by "indivdual sprinkler sample" as referenced in Section 5.3.1.2, does this pertain to the style of the sprinkler (such as upright, pendent etc.)?

Individual sprinkler sample refers to each type of sprinkler in a system. For example, if a system contains upright and pendent sprinklers, one percent or not less than four of each type must be removed for testing.

8. If a system has only one riser but serves several tenant spaces, such as a strip mall, should a sprinkler sample be taken from the system as a whole or from each individual tenant space?

In your case, a sample from each tenant space is not required. The sampling requirement in Section 5.3.1.2 is intended to be random sampling, meaning that sprinklers should not be removed from a single branchline but should be taken from a number of different areas in a building (where practical). Removing sprinklers from as many different areas as possible will better represent the condition of all or most of the sprinklers in that system.

9. How many sprinklers must be removed from a system for testing?

Section 5.3.1.2 requires that one percent (or no less than four) be removed and submitted to a testing laboratory for evaluation. If a system contains 500 sprinklers for example (400 upright and 100 pendent) then a total of eight sprinklers must be removed; 400X.01=4 and 100X.01=1 (but not less than 4).

10. Our local high school is fully sprinklered. The sprinklers located in the swimming pool area have turned green. Are these sprinklers required to be replaced?

Yes. Any sprinkler found to be corroded must be replaced in accordance with Section 5.2.1.1.2. Anytime brass is exposed to constant moisture (particularly combined with chlorine), corrosion will result. Sprinklers exposed to these conditions, should be wax coated to protect the sprinkler from corrosion. Wax coated sprinklers are available from any sprinkler manufacturer. Wax is not permitted to be applied after the sprinkler leaves the manufacturer.

11. When replacing sprinklers in a system, is it necessary to perform a hydrostatic test?

Section 5.4.3 of the standard refers to NFPA 13 "Standard for the Installation of Sprinkler Systems" when maintenance or repair involves more than 20 sprinklers. This section is intended to address common installation issues such as pipe, fittings, hangers and so on. It is sometimes a common practice to hydrotest a system without sprinklers installed, i.e.: with ½" plugs installed in the bottom of a drop to a pendent sprinkler and then install the sprinkler after final adjustment of the drop once the finished ceiling is installed. Both standards are silent on this issue. My suggestion is to consult the local fire marshal to determine what he/she will accept. In most cases when replacing sprinklers only, and not modifying the pipe, an hydrostatic test is not required.

12. Do standpipe systems require a periodic hydrostatic test?

Yes. However, only dry standpipe systems such as those found in a parking structure for example, must be tested every five years. The hydro-test is required to verify piping integrity. Wet systems do not need to be routinely hydro-tested since leaks in the pipe are readily apparent.

13. I have a standpipe system with two risers. The original design indicates a total flow of 750 gpm (2839 Lpm). Am I required to flow this much water for the five year flow test?

No. When conducting the five year flow test, one riser is tested at a time. Therefore, the flow should be a total of 500 gpm (1892 Lpm), 250 gpm (946 lpm) for each of the two topmost outlets.

14. Chapter five of NFPA 25 requires a weekly fire pump test to be conducted without flowing water. Does this include the circulation relief valve?

No. The standard says "without flowing water" so no one flows water at minimum, rated and peak flows each week as required for the annual flow test. The circulation relief valve must flow water anytime the pump is running to provide proper cooling of the pump. Without this small flow of water, the pump will overheat resulting in damage to the pump shaft or other components.

15. During the weekly inspection of the fire pump in my building, I have observed water near the baseplate of the pump. Is this normal or do I have a leak?

A small amount of water in the baseplate drain is normal. This water should be dripping from the packing glands. The packing glands on the pump must be kept wet for proper lubrication (about one drop per second). Never adjust the packing gland to stop the dripping of water. To do so will prevent lubrication and will result in the destruction of the packing gland.

16. During the annual test of our fire pump it was noted that pump performance was slightly less at peak flow, than the results obtained during the original acceptance test. Is this a problem?

This may not be a problem. First, you should verify that all valves on the suction side of the pump and in the test header are open fully. Some decrease in performance can be expected due to slight wear of the pump or its components, this is normal. The annual test is intended to ensure that the pump is capable of supplying the maximum system demand. The test results from the annual test are not required to meet the original pump curve as in the original acceptance test.

17. When performing the five year internal inspection of a water storage tank, is it necessary to drain the water from the tank or can a qualified diver perform the necessary inspection?

In order to perform the required inspection and maintenance activities outlined in Chapter 9, the water is not required to be drained from the tank. A certified commercial diver can perform the inspection without draining water from the tank. In any case, the inspection should include verification that center columns of tubular design are not holding water, spot wet sponge testing and vacuum box testing to name a few.

18. I need to perform a flow test through the backflow preventer in my sprinkler system. I have no test connection sized to accommodate this much flow. What can I do to comply with this requirement?

You have several options, they are:

- use the fire pump test header, if present, as a test connection
- if the backflow preventer is installed on the suction side of the pump, the annual fire pump test will also serve as a flow test for the backflow preventer
- the fire department connection may be used as a test connection by reversing the check valve and flowing water out of the FDC. It might be a good idea to install a by-pass around the check valve with a normally closed control valve for future testing

19. When is a main drain test required?

A main drain test is required annually or any time the water supply control valve is closed, this includes any time a system undergoes maintenance or repair. This test is essential to

ensure that the water supply valve is fully open. Sprinkler systems perform exceptionally well, however when they do fail the major cause of failure (35% of the cases reported to NFPA) the water supply valve was closed, thus the verification of an open water supply valve cannot be over emphasized. The annual test frequency is a minimum requirement, NFPA 25 permits more frequent testing if desired.

20. We have been experiencing pin-hole leaks in our sprinkler system. Our maintenance contractor suggests that the problem may be the presence of MIC. What is MIC and how can the problem be corrected?

MIC or microbiologically influenced corrosion is the result of certain types of bacteria in the water that attack steel and copper pipe. MIC can be recognized by the presence of orange or black tubercules or black mud-like slime in steel pipe and blue or green tubercules in copper pipe.

The best approach to address this situation is to submit a sample of the corrosion by-product to a laboratory for testing (such labs can be found on the internet) and identification of the microorganism responsible. Once identified, a treatment strategy can be developed. This may involve altering one or more environmental conditions inside the pipe such as: oxygen levels, pH, temperature or residual chlorine content. If the problem is MIC, treatment of the water will be necessary each time you test or flush your system. Introducing a fresh supply of water and oxygen may allow the MIC to renew its attack on the pipe.