

Starting the Clock on When a Sprinkler is “In Service”

In the last issue of TechNotes (278), the final question and answer raised a bit of a controversy in the industry. Clearly this issue needs a bit more discussion, so this issue will be dedicated to delving more deeply into this question and how it should be handled. As a reminder, here’s a repeat of the question and answer:

Question 12 – Starting the “Clock” on New Sprinklers

We are installing quick response sprinklers in a system that are three years old. These sprinklers have never been installed and meet the definition of “new” sprinklers. NFPA 25 requires that quick response sprinklers be tested when they are 20 years old. So, do these sprinklers need to be tested in 2033 or 2030?

Answer: 2030. The clock starts when they are manufactured, not installed.

The commentary that we got back from many members was that the “clock” should be started when the sprinklers are installed in the system, not when the sprinkler is manufactured. While we here at the NFSA don’t completely agree with that position, we thought that the issue needed additional discussion.

The Case for Starting the Clock on Installation

Sections 5.3.1.1, 5.3.1.1.1.3, and 5.3.1.1.1.5 of NFPA 25 say that sprinklers that have been “in service” for 20, 50 or 75 years need to be sample tested or replaced. By using the words “in service” rather than “years old”, the standard is allowing the clock to start when the sprinklers are installed rather than when they are manufactured.

One of the reasons that sample testing or replacement of sprinklers needs to occur is that the environment around the sprinkler affects whether the sprinkler is able to perform its function after being installed in that environment for many years. If a sprinkler is installed after sitting in the manufacturer’s or distributor’s warehouse for a few years, the controlled environment of the warehouse may have no similarity with the environment where it will eventually be installed, therefore, there is no reason to start the clock until the sprinkler is in the environment where it will spend the overwhelming amount of its time.

Another of the reasons for starting the clock when the sprinkler is installed is that the stress on the sprinkler is partially a function of the water pressure pushing from under the sprinkler seat. There is no need to consider the time when the sprinkler is in the warehouse because there is no load being put on the sprinkler due to water pressure.

The Case for Starting the Clock Using the Date of Manufacture

The term “in service” as used in NFPA 25 is not defined. It can be considered the period of time after the sprinkler has been manufactured. When a fire sprinkler is manufactured, a load is placed on the activating mechanism (in tension or compression depending on the design of the sprinkler). One of the reasons that sample testing or replacement of sprinklers needs to be performed is that the long-term effect of the load on the activating mechanism needs to be evaluated. This load begins when the sprinkler is manufactured. Yes, the load increases when the sprinkler is subjected to system pressure once it has been installed, but there is a load on the activating mechanism of a sprinkler even when it is sitting in a warehouse, before it has been installed.

Another reason that the clock should start using the date of manufacture is that this date is easy to find for each sprinkler. The manufacturer is required to stamp the date of manufacture right on the sprinkler (with some flexibility given by the listing labs for a few months on either side of the calendar year to perform the change). Whenever you pick up a sprinkler, it is extremely easy to determine how old it is, making enforcement extremely easy. If you were to try and rely on the date of installation, that might be extremely difficult to determine.

A third reason to consider using the date of manufacture rather than the installation date is the use of sprinklers in the spare sprinkler cabinet to replace sprinklers in the system that might have activated. If you use the date of manufacture as the point where the clock starts, the sprinklers installed from the spare sprinkler cabinet would have the same clock running as the rest of the system. But if you use the date of installation as the point where the clock starts running, then there will be different clocks running on different sprinklers in the system at the same time, making enforcement and data keeping much more difficult for sprinklers that are the same age.

Summary

Both sides of this discussion have valid points. Ultimately, it will be up to the Authority Having Jurisdiction to decide. The most conservative and easiest method of deciding when to do the testing is to start the clock when the sprinkler is manufactured. In fire protection, we tend to take the most conservative route when a difficult decision needs to be made. When the most conservative position is also the easiest position, it helps to justify the decision to start the clock when the sprinkler is manufactured.

Those people that want to start the clock when the sprinkler is installed in the system have some valid points for doing so. If this is the way that you want to measure the time, check with the Authority Having Jurisdiction and make sure that they concur.

For the next edition of NFPA 25, the NFSA will submit a proposal to try and clarify this issue. The proposals are due in July of 2014 and the committee won’t meet to take a position on the issue until some time after that. A preliminary decision may be available (after being balloted) by the end of 2014, but the official release of the standard with the clarified position might not be until the fall of 2016.

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