

TAKE A LOOK INSIDE

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>> HEADS UP

SPRINKLER + SUPPRESSION SYSTEMS
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Take a Look Inside

There's more than one way to conduct internal assessments of piping

A MAIN TOPIC OF DISCUSSION during the latest revision cycle of NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, was the need for internal assessments of water-based fire protection system piping. The tried-and-true method of conducting these assessments includes draining the system, opening the piping, and looking inside, which lets an inspector see the internal condition of the pipes and take samples of any organic growth.

But it's not the only approach. NFPA 25 specifically states that less-invasive methods for conducting the assessment are also permitted, such as ultrasound technology, which allows building owners to check these systems properly without the disruption of shutting them down.

A bit of background. The most recent discussions on internal assessments took place at both NFPA 25 committee meetings. They were also the catalyst for the formation of an internal assessment task group that studied the issue outside of the committee meetings. The topic is nothing new; Chapter 14, which addresses the internal inspection, testing, and maintenance tasks outlined by NFPA 25, has had several Certified Amending Motions (CAMs) filed in each of the last two code-development cycles.

Several aspects of these assessments are contentious and were the genesis of the CAMs. The typical draining/opening/observing process requires the system to be taken off line, which can lead to business interruption that may be unacceptable to some owners. Objections have also been raised about the frequency, effectiveness, and cost of the assessments.

It's up to the NFPA 25 technical committee to balance these concerns while developing internal assessment requirements that provide the owner, the authority having jurisdiction, or the insurance representative with an assurance that the pipe's internal condition will allow system demand to reach the discharge device.

One assessment method that is gaining popularity uses ultrasound or ultrasonic technology. By applying ultrasonic transducers to a pipe's exterior surface, internal conditions can be identified quickly and accurately without shutting down the system. Pulse echo and guided wave technology are two types of ultrasound that have been used in the sprinkler industry for years with great success.

Pulse echo ultrasonic technology works by measuring the amount of time it takes for an ultrasonic straight beam signal to travel through the wall of the pipe and reflect off the back wall, resulting in a "remaining wall thickness" measurement calculated to a thousandth of an inch. Guided wave, or lamb wave, ultrasonic technology determines the internal surface conditions by traveling around the circumference of the pipe. The wave generated by the pipe being tested is compared to the wave created by a pristine section of pipe, and discrepancies between the two can indicate possible degradation of the internal pipe wall, including ice plugs, microbologically influenced corrosion, material corrosion, or any other change that could modify the flow characteristics of the piping.

This technology does not settle the debate over the need for internal assessments or how frequently they should occur, but it does provide a cost-effective, non-invasive way to establish the internal condition of pipes without causing business interruption. It also gives the owner and insurance company flexibility in complying with NFPA 25, which is something everyone can appreciate.

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