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NFPA 25 SPRINKLER TESTING
Grant Lobdell
Dyne Fire Protection Labs, An NFPA Global Solution Company
SAN ANTONIO, TX
AFSA
American Fire Sprinkler Association

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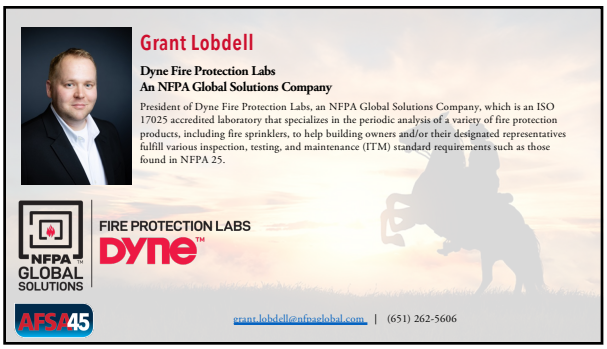
Grant Lobdell
Dyne Fire Protection Labs
An NFPA Global Solutions Company
President of Dyne Fire Protection Labs, an NFPA Global Solutions Company, which is an ISO 17025 accredited laboratory that specializes in the periodic analysis of a variety of fire protection products, including fire sprinklers, to help building owners and/or their designated representatives fulfill various inspection, testing, and maintenance (ITM) standard requirements such as those found in NFPA 25.
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HOUSEKEEPING ITEMS
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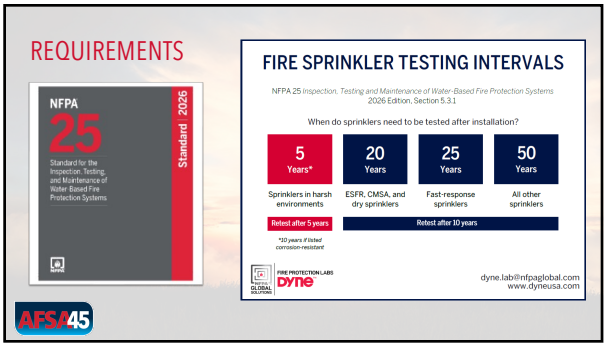
REQUIREMENTS
NFPA 25 Standard 2026
Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
FIRE SPRINKLER TESTING INTERVALS
NFPA 25 Inspection, Testing and Maintenance of Water-Based Fire Protection Systems 2026 Edition, Section 5.3.1
When do sprinklers need to be tested after installation?
5 Years* | 20 Years | 25 Years | 50 Years
Sprinklers in harsh environments | ESFR, CMSA, and dry sprinklers | Fast-response sprinklers | All other sprinklers
Retest after 5 years | Retest after 10 years
*10 years if listed corrosion-resistant
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BEFORE SAMPLING
Any sprinkler that shows any of the following signs during the annual floor level inspection shall be replaced:
Leakage
Corrosion detrimental to sprinkler performance
Physical Damage
Loss of fluid in the glass bulb heat-responsive element
Loading detrimental to sprinkler performance
Paint, other than that applied by the sprinkler manufacturer, detrimental to sprinkler performance
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SAMPLING
FIELD SPRINKLER SAMPLING
SAMPLE AREA
Sample area is defined by the building owner and/or their designated representative.
Can be as big or as small as desired. If even one sprinkler fails in a sample set, ALL samples in the area represented by that sample set need to be replaced.
Treat different environments as different sample areas.
Living Quarters
Parking Garage
Offices
Swimming Pool
SAMPLE SIZE
A minimum of 4 or 1%, whichever is greater, of the sprinklers from the defined sample area.
A representative sample will contain at least one of each type of sprinkler and at least one sprinkler from each type of environment.
The samples taken should be taken at random.
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TESTING

$$RTI = \frac{t_f * (\sqrt{u})}{\ln[\frac{(Tg - To)}{(Tg - Tr)}]}$$

- RTI = Response Time Index [(m·s)$^{1/2}$]
- T_f = Time to activate (s)
- u = Oven velocity (m/s)
- T_g = Oven temperature (°C)
- T_o=Ambient temperature (°C)
- T_r = Temperature rating of sprinkler (°C)

- **Standard Response ≤ 350 [(m·s)$^{1/2}$]**
- **Quick Response ≤ 65 [(m·s)$^{1/2}$]**
- **ESFR ≤ 50 [(m·s)$^{1/2}$]**

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FAILURE STATISTICS

- **Overall, 5.1%** of the sprinklers tested at Dyne have failed
  - 3.4% of the sprinklers received last year still featured an O-ring water seal design which has a **>5.5% failure rate**

Failure rates of various types of sprinklers, **with O-rings removed** from the dataset:

- Dry Sprinklers = 1.5%
- ESFR = 10.5%
- Fast Response = 1.2%
- Standard Response = 3.5%

Data compiled May 19th, 2026.

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WHAT IF A SPRINKLER FAILS?

Where even just **one** sprinkler within a representative sample fails to meet the test requirement, **ALL** sprinklers within the area represented by that sample shall be replaced.

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ROUTINE VS NON-ROUTINE TESTING

The testing described in this presentation is considered **routine testing**. Nonroutine testing should be conducted to address unusual conditions outside of the routine test cycles. Nonroutine testing is NOT subject to any sampling requirements.

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REQUIRED

FOR CEU CREDIT:

- ✓ Badge scanned at start of seminar
- ✓ Attend full seminar
- ✓ Complete survey 1 of 2 ways:
  - ✓ Survey link is emailed to attendees with scanned badges
  - ✓ **Event app by EventsAir**
    - Login to app
    - Navigate to seminar survey
  - ✓ Surveys close 10/31/26

Thank you!

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Scan QR code to submit questions for **Ask the Experts!**

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FIRE SPRINKLER TESTING INTERVALS

NFPA 25 *Inspection, Testing and Maintenance of Water-Based Fire Protection Systems*
2026 Edition, Section 5.3.1

When do sprinklers need to be tested after installation?

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Sprinklers in harsh environments	ESFR, CMSA, and dry sprinklers	Fast-response sprinklers	All other sprinklers
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FIELD SPRINKLER SAMPLING

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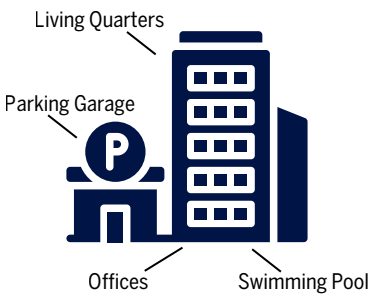

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2027 Training Schedule

WEBINARS

1/6	Updates to NFPA 20
1/20	Calculating Pressure Reducing Hose Valves
2/3	Consumer Alert: Nitrogen in Sprinkler Systems
2/17	Reviewing Hydraulic Calculations
3/3	Updates to NFPA 13, 2028 Ed.
3/17	Updates to NFPA 13R & 13D, 2028 Eds.
4/7	Topic Coming Soon
4/21	NFPA 25: Roles & Responsibilities
5/5	Standpipe Flow Test Procedures
5/19	Storage 101
6/2	NFPA Technical Meeting - Voting Guide
6/16	Topic Coming Soon
6/30	Topic Coming Soon
7/7	Updates to NFPA 14, 2027 Edition
7/21	Adjacent Hazards & Design Methods
8/4	Acceptance Testing
8/18	Modifications to Existing Systems
9/22	Topic Coming Soon
10/6	Seismic 101
10/20	Proposed Updates to NFPA 25, 2029 Ed.
11/3	Evaluating Fire Pump Flow Tests
11/17	Top 10 Tech Reviews
12/1	Designing Water Storage Tanks
12/15	Pump Room Layout

PROGRAMS

Feb 9 - Mar 5 Apr 20 - May 14 Aug 3 - Aug 27** Oct 26 - Nov 19	Beginning Design School*
Apr 26 - May 7 Nov 1 - 12	Intermediate Design School*
Feb 8 - 10** Apr 12 - 14 Jul 12 - 14 Oct 11 - 13	Sprinkler Hydraulics Calculations Workshop
Apr 19 - 21 Oct 18 - 20	Advanced Hydraulics Calculations Workshop
Feb 11** Apr 30 Jul 23 Sep 24	Introduction to the Fire Sprinkler Industry
Mar 1 - 3 May 17 - 19 Aug 16 - 18 Oct 18 - 20**	NFPA 25 Essentials Workshop
Jun 7 - 10 Sep 20 - 23	Experienced Inspector Skills Lab
Mar 4 - 5 May 20 - 21 Aug 19 - 20 Oct 21 - 22**	NFPA 25 Fire Pump Workshop
Spring Summer Fall	ITM Inspector Development Program* *This program is 20 months.*

** Hybrid course **At General Air Products Lab, Exton, PA*

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September 8-11	Manchester Grand Hyatt San Diego, CA

For More Details Visit:
firesprinkler.org

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Dates subject to change. Programs subject to minimum registrations.

rev 9/14/2026

Virtual Instruction Path (VIP)

for Sprinkler Fitting Apprentices

Level 1 - Begins January 2027

Level 2 - Begins February 2027

Level 3 - Begins January 2027

Level 4 - Begins March 2027

www.firesprinkler.org/VIP

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HANDS-ON WORKSHOPS FOR 2027

FEATURING AFSA'S TRAINING LAB

NFPA 25 Essentials Workshop

Mar | May | Aug | Oct

Description: Understand roles, responsibilities, and NFPA 25 ITM procedures through hands-on testing of wet systems, dry systems, and fire pumps.

NFPA 25 Fire Pump Workshop

Mar | May | Aug | Oct

Description: Develop practical NFPA 25 fire pump ITM skills, including no-flow and full-flow testing, water supply graphing, and performance evaluation.

Introduction to the Fire Sprinkler Industry

Feb | Apr | Jul | Sep

Description: This course is designed for those new to the industry. An introductory, wide-ranging 8-hour course that provides a broad overview of core fire sprinkler industry concepts for those new to the field.

Experienced Inspector Skills Lab NEW

Mar | Sep

Description: Take your ITM expertise beyond the basics. Designed for experienced technicians, this course combines focused classroom instruction with hands-on system lab training to strengthen your application of current NFPA 25 inspection, testing, and maintenance requirements. Refine fire sprinkler testing practices, improve documentation, deliver more consistent service, and help reduce liability while reinforcing knowledge commonly covered on certification exams.

Learn more about AFSA's fire sprinkler lab featuring functional risers, a spray room, fire pumps, and an interactive classroom.

firesprinkler.org/lab