POTTER

The Symbol of Protection

NFPA 25-2017 Update

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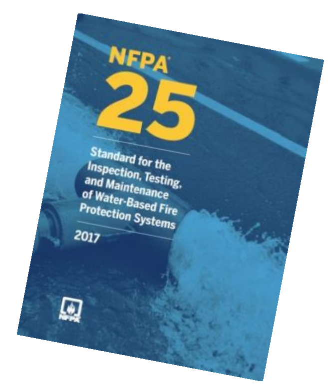
NFPA 25-2017

- Standard was released October 28, 2016
- Changes primarily focused on clarification and simplification
  - frequencies, gauges, etc.
- Few “new” ITM requirements

NFPA 25 Refresher

- Purpose
- Scope
- Application
- Definitions
- Responsibilities

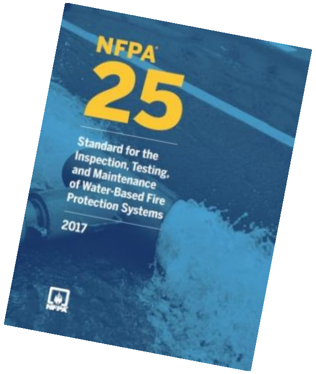


NFPA 25 Refresher

- Purpose is to provide requirements to "ensure a reasonable degree of protection"

- Can't address everything all the time

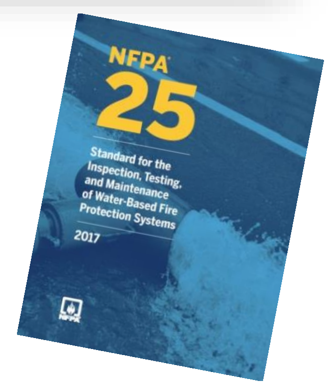
- Requirements based on loss/failure history



NFPA 25 Refresher

- Scope causes a lot of confusion

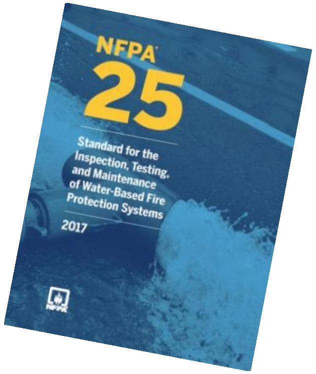
1.1 Scope. This document establishes the minimum requirements for the periodic inspection, testing, and maintenance of water-based fire protection systems and the actions to undertake when changes in occupancy, use, process, materials, hazard, or water supply that potentially impact the performance of the water-based system are planned or identified.



NFPA 25 Refresher

- Scope causes a lot of confusion

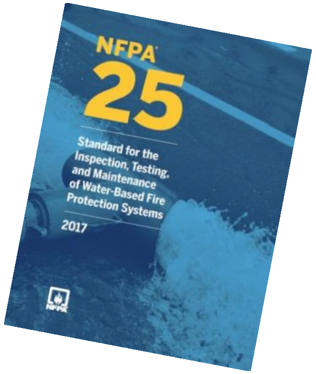
1.1.3.1* This standard does not require the inspector to verify the adequacy of the design of the system.



NFPA 25 Refresher

- Does not apply to NFPA 13D systems
  - Unless required by chapter 16

- Applies (but not limited)to sprinkler, standpipe and hose, fixed water spray, private fire hydrants, water mist, and foam water.



NFPA 25 Refresher

- Each "system" has its own chapter

- Each system chapter contains:
  - Summary table
  - Inspection, Testing, & Maintenance requirements
  - Component Action Requirements

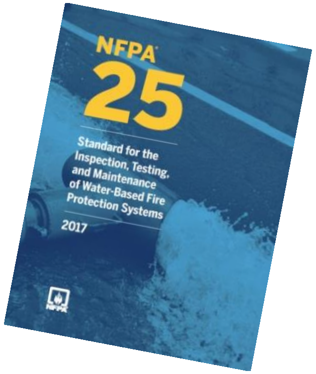


Table 5.1.1.2 Summary of Sprinkler System Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Control valves		Chapter 13
Fire department connections		Chapter 13
Gauges (wet and deluge systems)	Quarterly	Chapter 13
Gauges (dry and preaction systems)	Monthly/quarterly	Chapter 13
Hanger/braces/supports	Annually	5.2.3
Heat tracing	Per manufacturer's requirements	5.2.7
Hydraulic design information sign	Annually	5.2.6
Information signs	Annually	5.2.8, 5.2.9
Internal piping condition		Chapter 14
Pipe and fittings	Annually	5.2.2
Sprinklers	Annually	5.2.1
Sprinklers (spare)	Annually	5.2.1.4
Supervisory signal devices (except valve supervisory switches)	Quarterly	5.2.5
System valves		Chapter 13
Valve supervisory signal devices	Quarterly	5.2.5
Waterflow alarm devices	Quarterly	5.2.5
Test		
Antifreeze solution	Annually	5.3.4
Control valves		Chapter 13
Gauges	5 years	Chapter 13
Main drain		Chapter 13
Sprinklers	At 50 years and every 10 years thereafter	5.3.1.1.1, 5.3.1.1.1.1, 5.3.1.1.1.2
Sprinklers	At 75 years and every 5 years thereafter	5.3.1.1.1.5
Sprinklers (dry)	10 years and every 10 years thereafter	5.3.1.1.1.6
Sprinklers (extra high or greater temperature solder type)	5 years	5.3.1.1.1.4
Sprinklers (fast-response)	At 20 years and every 10 years thereafter	5.3.1.1.1.3
Sprinklers (harsh environments)	5 years	5.3.1.1.2
Supervisory signal devices (except valve supervisory switches)		Chapter 13
System valves		Chapter 13
Valve supervisory signal devices		Chapter 13
Waterflow alarm devices (Mechanical)	Quarterly	5.3.3.1
Waterflow alarm devices (vane and pressure switch type)	Semiannually	5.3.3.2
Maintenance		
Low-point drains (dry pipe and preaction systems)		Chapter 13
Sprinklers and automatic spray nozzles protecting commercial cooking equipment and ventilation systems	Annually	5.4.1.7
Valves (all types)		Chapter 13
Investigation		
Obstruction		Chapter 14

NFPA 25 Refresher

- Section 5.2.1 addresses
  - Inspection from the floor
  - Conditions requiring replacement
  - Sprinkler position
  - Sprinklers exempt from inspection
  - More…

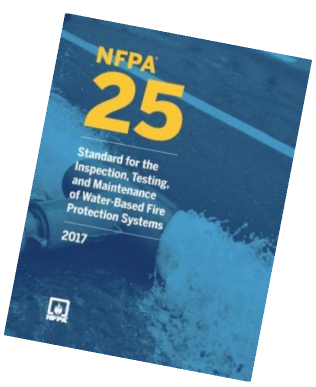
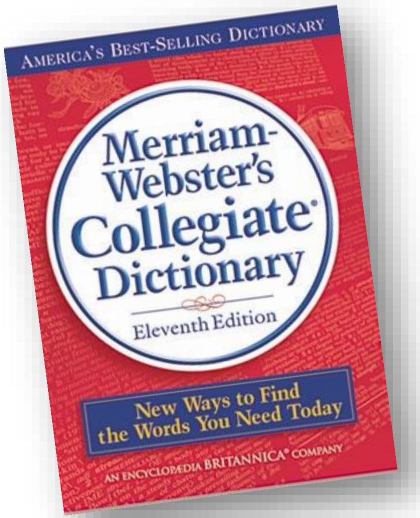


Table 5.5.1 **Summary of Component Action Requirements**

Component	Adjust	Repair/ Recondition	Replace	Required Action
Water Delivery Components				
Pipe and fittings affecting not more than 20 sprinklers	X	X	X	Inspect for leaks at system working pressure
Pipe and fittings affecting more than 20 sprinklers	X	X	X	Hydrostatic test in conformance with NFPA 13
Sprinklers, regardless of number	X		X	Inspect for leaks at system working pressure
Sprinklers, more than 20	X		X	Hydrostatic test in conformance with NFPA 13
Fire department connections	X	X	X	See Chapter 13
Antifreeze solution	X		X	Inspect freezing point of solution Inspect for leaks at system working pressure
Alarm and Supervisory Components				
Vane-type waterflow	X	X	X	Operational test using inspector's test connection
Pressure switch–type waterflow	X	X	X	Operational test using the inspector's test connection or alarm bypass test valve
Water motor gong	X	X	X	Operational test using inspector's test connection
High and low air pressure switch	X	X	X	Operational test of high and low settings
Valve supervisory signal initiating device	X	X	X	Test for conformance with NFPA 13 and/or *NFPA 72*
Detection system (for deluge or preaction system)	X	X	X	Operational test for conformance with NFPA 13 and/or *NFPA 72*
Status-Indicating Components				
Gauges			X	Verify at 0 bar (0 psi) and system working pressure
Testing and Maintenance Components				
Air compressor	X	X	X	Operational test for conformance with NFPA 13
Automatic air maintenance device	X	X	X	Operational test for conformance with NFPA 13
Main drain	X	X	X	Main drain test
Auxiliary drains	X	X	X	Inspect for leaks at system working pressure; main drain test
Inspector's test connection	X	X	X	Inspect for leaks at system working pressure; main drain test
Structural Components				
Hanger/seismic bracing	X	X	X	Inspect for conformance with NFPA 13
Pipe stands	X	X	X	Inspect for conformance with NFPA 13
Informational Components				
Identification signs	X	X	X	Inspect for conformance with NFPA 13 and this standard
Hydraulic design information sign	X	X	X	Inspect for conformance with NFPA 13 and this standard
General information sign	X	X	X	Inspect for conformance with this standard

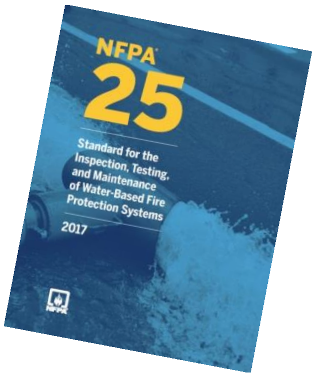
NFPA 25 Refresher

- Defining important terms
  - Inspection
  - Testing
  - Maintenance
  - Deficiency
  - Impairment
  - Qualified



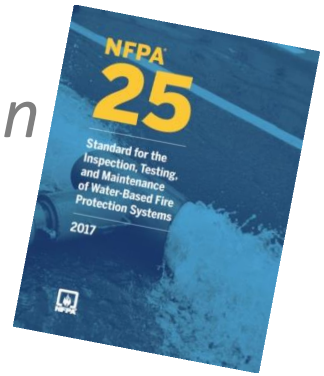
NFPA 25 Refresher

- Chapter 4 establishes responsibilities
- The owner is responsible for maintaining the system(s)
- The contractor's role is to provide the owner with information about the condition of the system
- The AHJ’s role is enforcement along with some consultation



NFPA 25 Refresher

- **Section 4.1** – Owner is responsible for:
  - *Inspection, Testing, & Maintenance*
  - *Maintaining temperature in the building*
  - *Providing access to important features*
  - *Notification of shutdown*
  - *Impairment handling/Appointing coordinator*
  - *Corrections and repairs*
  - *NOT making changes without evaluation*
  - *Addressing changes*
  - *Maintaining records*

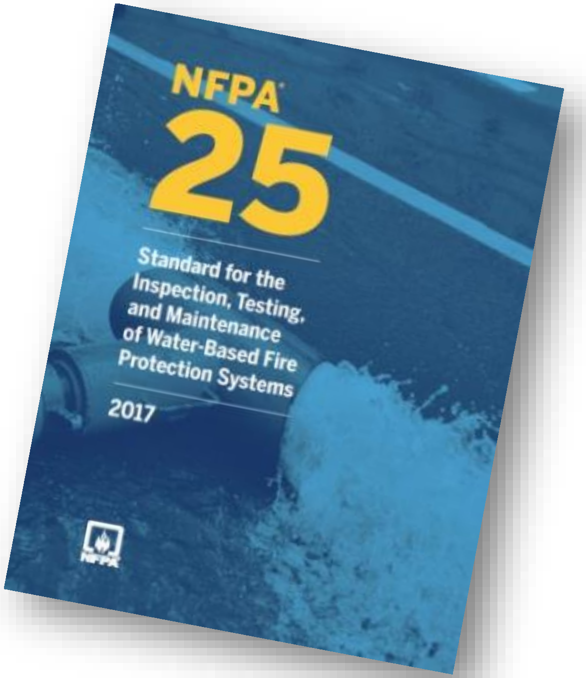


What "didn't" change?

- Scope (no challenges this cycle)
  - Lot of discussion about periodic evaluation
- Failure to preform less frequent inspection & testing <u>not</u> a "deficiency"
- Internal inspections (same as 2014 ed.)
- Fire pump test frequencies

Organization of NFPA 25-2017

- Chapters 1-4
  – *"Administrative Chapters"*
- Chapters 5-13
  – *"System Chapters"*
- Chapters 14 & 15
  – *"Corrective Chapters"*
- Chapter 16
  – Special Requirements from Other NFPA Documents *(new in 2014 edition)*
- Annexes A-H



2017 Annex Information

- **A** – Explanatory Information
  - A.3.3.7 (annex "E" from 2011 edition)
- **B** – ITM Forms
- **C** – Possible Causes of Pump Troubles
- **D** – Obstruction Investigation
- **E** – Hazard Evaluation Form
- **F** – Connectivity & Data Collection
- **G** – Color-coded Tagging
- **H** – Informational References

Identifying Changes

Prior to 2017 edition

9.1.4 Impairments. The procedures outlined in Chapter 15 shall be followed where an impairment to protection occurs.

9.2 Inspection.

9.2.1 Water Level.

9.2.1.1* The water level in tanks equipped with supervised water level alarms that are connected to a constantly attended location shall be inspected quarterly.

9.2.1.2 The water level in tanks not equipped with supervised water level alarms connected to a constantly attended location shall be inspected monthly.

Identifying Changes

Beginning with the 2017 edition

7.2.2.1 Exposed Piping.

7.2.2.1.1 Exposed piping shall be inspected annually.

7.2.2.1.2 Piping shall be inspectedfor the following conditions:

(1) Leaks
(2) Physical damage
(3) Corrosion
(4) Restraint methods

• *N* **7.2.2.1.2.1** Where any deficiency is noted, the appropriate corrective action shall be taken.

“Global” Changes

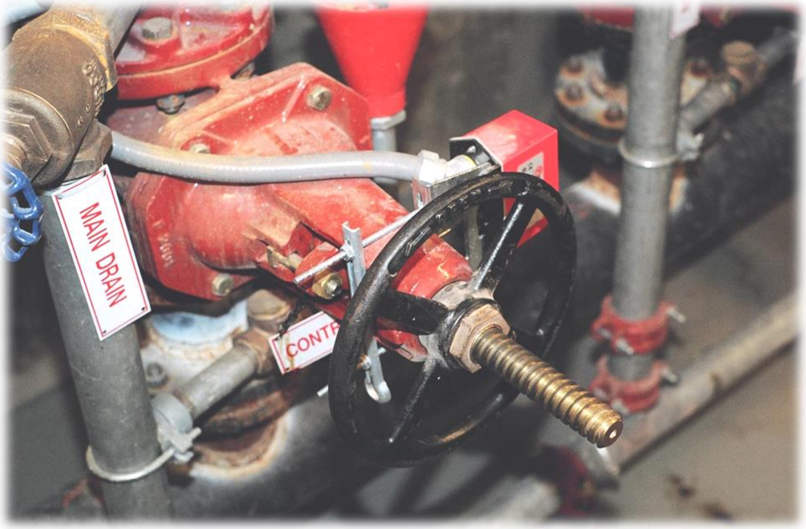
- Summary tables are arranged alphabetically
  - Only reference the chapter if outside the system chapter

Table 7.1.1.2 Summary of Private Fire Service Main Inspection, Testing, and Maintenance

Item	Frequency	Reference
Inspection		
Hose houses	Quarterly	7.2.2.7
Hydrants (dry barrel and wall)	Annually and after each operation	7.2.2.4
Hydrants (wet barrel)	Annually and after each operation	7.2.2.5
Mainline strainers	Annually and after each significant flow	7.2.2.3
Monitor nozzles	Semiannually	7.2.2.6
Piping (exposed)	Annually	7.2.2.1
Piping (underground)	See 7.2.2.2	7.2.2.2
Test		
Hydrants	Flow, annually	7.3.2
Monitor nozzles	Flow, annually (range and operation)	7.3.3
Piping (exposed and underground) (flow test)	5 years	7.3.1
Valve status test		Chapter 13
Maintenance		
Hose houses	Annually	7.2.2.7
Hydrants	Annually	7.4.2
Mainline strainers	Annually and after each operation	7.2.2.3
Monitor nozzles	Annually	7.4.3

“Global” Changes

- Chapter 13 re-named “Common Components and Valves”
- ITM for common components moved to ch. 13
  - Gauges, switches, valves, etc.

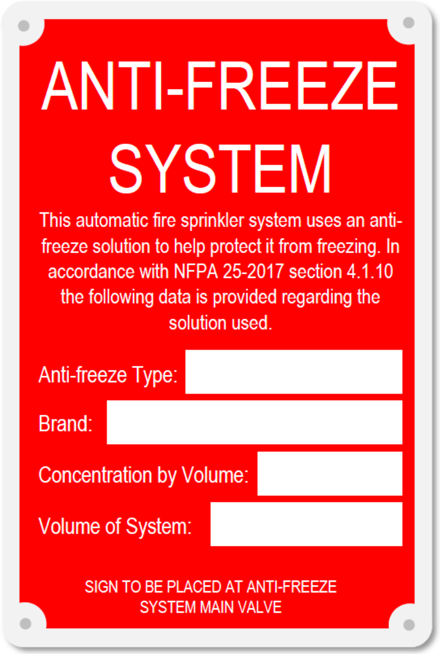


Evaluation of Change

- Owner shall evaluate fire protection systems *before* making changes
- Evaluation must consider:
  - Occupancy changes
  - Process or material changes
  - Building revisions
  - Removal of heating systems
  - Storage method/arrangement/height
  - Water supply changes

Anti-freeze Sign

- New anti-freeze signage requirement
- Must show concentration & volume
- Posted on anti-freeze system main valve
- Section 4.1.10



Automated Inspection

- Automated inspections permitted as long as they meet the intent of a visual inspection
  - Use of cameras, transducers, temperature sensors, etc.

- Section 4.6.6

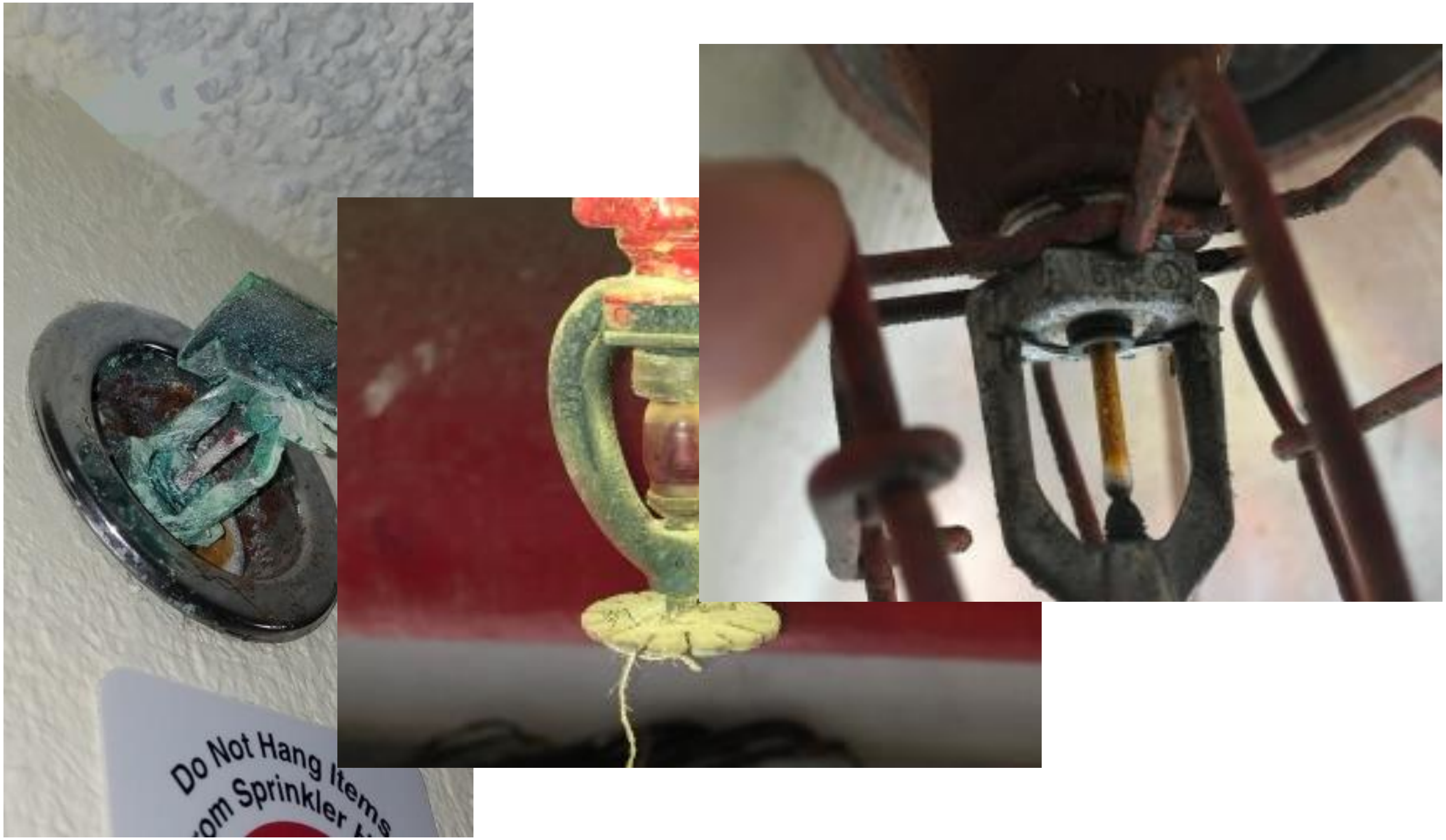
Automated Testing

- Automated testing equipment must "produce the same action" required by NFPA 25
  - Including flowing water *past* flow switch
- Automated testing devices must be listed for the purpose of the test being conducted
- Must be supervised
- Flow witnessed 1 out of every 3 years

Sprinkler Inspections

- New subjective language regarding corrosion and loading
- Must be “detrimental to sprinkler performance” to be deemed a deficiency
- 5.2.1.1.1

Sprinkler Inspections



Clear Fluid in Glass Bulb

- Annex language clarified A.5.2.1.1.1
- Fairly common finding
  - Cold environments
  - Exposure to sunlight

- Doesn't present a problem as long as fluid is present

Standpipe Flowtesting

- 5-year frequency flowtesting required for <u>all automatic</u> standpipes
- Added class II
- Clarified manual vs. automatic

- 6.3.1.1

Fire Service Mains

- 5-year frequency flowtest for fire service mains still applies
- "…serving hydrants" was deleted
- All private fire service mains subject to this requirement, regardless of presence of hydrants

- Section 7.3.1

Fire Pump Testing

- Several changes in chapter 8
- Deleted “without recirculating water back to pump suction”
- Must meet 95% test *and* demand
  - “Both” must apply for satisfactory performance
- Must document results of investigation and corrective action

Recording Transit Times

- Added recording water transit delivery time for full flow trip testing of dry systems
  - In addition to trip time
  - For comparison to previous records
- 13.4.5.2.5.2

Dedicated Air Compressors

- ITM rules for compressors dedicated to fire protection in 13.10

Chapter 13

- Deluge valve and preaction ITM separated

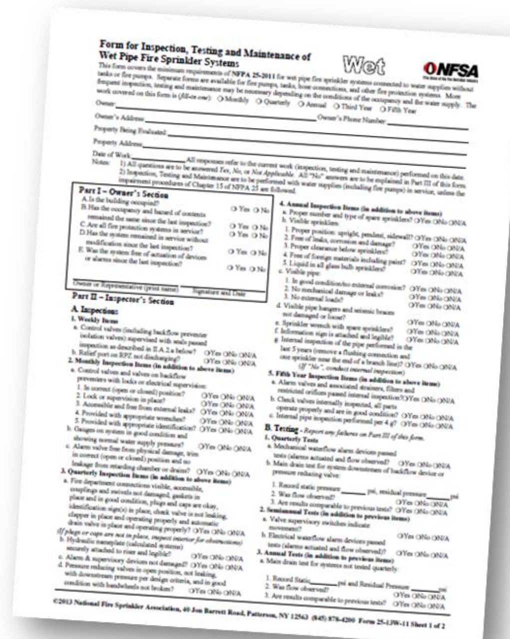
- No new inspections or tests

Adequate Drainage

- New language in 4.1.1.2.1 regarding water damage during testing
- Owner shall “coordinate” with entity that is conducting testing
- Chapter 13 requires “care shall be taken”
- 13.2.4

Annex B

- Attempt to bring mandatory form into standard
- Will appear as annex guidance in 2017 ed.
- No particular "form" but minimum information recommendations



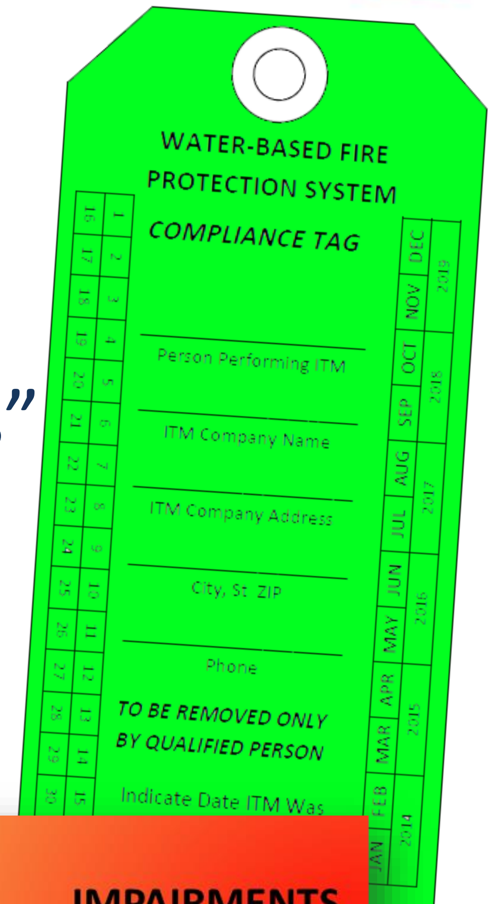
Form for Inspection, Testing and Maintenance of Wet Pipe Fire Sprinkler Systems

Wet

NFSA

Annex G

- Color-coded tagging guidance
- Intended to bring consistency
- 4-color system with “repair tags”



COMPLIANT | NON-CRITICAL DEFICIENCIES | CRITICAL DEFICIENCIES | IMPAIRMENTS

Thank You!

Questions??

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