NFPA 25 and the Reliability of Automatic Sprinkler Systems

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Introduction

- Reference Papers
  - Fire Protection Research Foundation Report: Water-Based Fire Protection System Tagging Review
- Handout
  - www.koffel.com

Overview

- Should the scope of NFPA 25 be reconsidered?
- Should a new standard for conducting design evaluations of sprinkler systems be considered?
- Should NFPA 3 address a periodic re-commission of systems, possibly as a function of the occupancy classification?
- Should re-commissioning be addressed by NFPA 101?
- Should NFPA 1 address inspection reviews that address the adequacy of sprinkler systems?
- Should no change be made and let things rest with the owners and the currently regulatory process?
1.1 - Scope

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.

What is the Scope of NFPA 25?

- Wear and Tear Driven
- Not a Design Evaluation
- Not a Re-commissioning Event
- Management of Change is Owner Driven
- Impact of Permitting Process
Is Permitting the Answer?

Reasons For Sprinklers Not Operating (2007-2011)

- Manual intervention: 17%
- System shut off: 64%
- System component damaged: 7%
- Lack of maintenance: 6%
- Inappropriate system for type of fire: 5%

Reasons For Sprinklers Operating Ineffectively (2007-2011)

- Water did not reach fire: 44%
- Not enough water released: 30%
- System component damaged: 8%
- Manual intervention: 7%
- Lack of maintenance: 7%
- Inappropriate system for type of fire: 5%
Insurer’s Perspective

- Representatives from Swiss Re, XL Gaps, FM Global, and Myers Risk Services
- Primary failure modes or events identified
  - Frozen systems
  - Accidental discharge claims
  - Corrosion
  - Impairments including fire pump impairments
  - Closed valves

- Level of comfort with where NFPA 25 is on design and installation issues
  - Needs to be addressed, possibly outside NFPA 25
  - Client education
  - Contractor recommendations should be sent to AHJ and insurers
- Summary
  - LIMITED RESOURCES
  - More efficient less expensive systems can make systems more challenging to ITM

Expectations of NFPA 25 and ITM

- Contractor, Owner, Fire Official, and a contractor who represents a User on the TC
- Perspectives
  - NFPA 25 does not give you all the information to keep the system working effectively
  - Unreasonable and unrealistic to expect owners to understand sprinkler systems
  - NFPA 25 should be a “wear and tear” document with design evaluations elsewhere
  - If design evaluations are to be done, they should be done to the current code, not the one used for design and installation (too hard to determine)
- LIMITED RESOURCES FOR AHJ'S
Follow-up Discussion

- If a contractor does an NFPA 25 inspection and fails to cite design deficiencies, is that okay?
  - Considerable discussion with no consensus
- Some contractors are preparing multiple contracts
  - What is required by NFPA 25
- What the jurisdiction requires
  - Full re-evaluations, if necessary, should be in a Code document (NFPA 1)
- Interview questions for building owner to discuss changes, etc.

Are NFPA 25 or NFPA 13 Part of the Solution?

- Educate code officials
- Educate owners as to the triggers for re-evaluation
- Survey AHJ's to see how NFPA 25 is being used (future research?)
- Training requirements for "qualified personnel"
- Focus on the Number 1 Problem – closed valves
- NFPA 25 should be the base minimum to make sure water comes out of the sprinklers when needed
- Adequacy of design should not be part of NFPA 25
- Need more data regarding failures
- New standard that is process driven (one size does not fit all)

Are Other Strategies Part of the Solution?

- Evaluations of systems should be mandated by fire codes and NFPA 101
- Use the Annex to provide more guidance as to what should be part of a system evaluation
  - Should this be the NFPA 25 TC or an NFPA 13 TC?
- Education is needed to addressed the closed valve scenario
  - Public Service Announcements
- In addition to providing the owner with a copy of NFPA 25, provide a summary document
- Determine triggers for re-evaluations
- Other NFPA standards need triggers to check if hazard has changed
- Add "management of change" language to NFPA 25 or codes
Where Do We Go From Here?

- www.nfpa.org/25
- Submit Public Input (July 7, 2014)
- Submit Public Comment (May 15, 2015)
- Technical Committee held two meetings to develop First Draft
  - Change driven by the Technical Committee
  - Change driven by the Public
- Technical Committee Second Draft meeting – September 16-18, 2015
  - Public Comments will be posted today or very soon

Proposed Changes

- Public Comment 66 – would permit quarterly inspection of control valves as compared to monthly

Proposed Changes

- Changes in use or occupancy
  - When should a system evaluation be performed?
    - As required by building and fire codes
    - Annually
  - What should be evaluated?
    - Sample form in Annex
  - Should NFPA 25 require such an evaluation?
Proposed Changes

- Automatic testing
  - Is manual testing still required? If so, at what frequency?
  - Test the actual performance to be tested

Proposed Changes

- Making the standard easier to use
  - Common format for each "system" chapter
  - Evaluate required frequencies
    - Do we need so many different frequencies?
      - Would extending the time between activities result in a higher level of compliance?
  - One standard fits all

Proposed Changes

- Recalled products
  - Part of the periodic inspection or design evaluation
  - Difficult to identify recalled products
    - From the floor
    - From the spare sprinkler cabinet
    - Knowledge of recalled products
  - NFPA 1 and IFC require such products to be replaced
  - Is the system operational with recalled products?
Proposed Changes

• Annex G – Model tagging system

Where Do We Go From Here?

• Changes to other codes and standards???
• Implementation of strategies that are not part of NFPA codes and standards
  • Education
  • PSA’s
  • Tools for the contractors to give to owners
• Improved or expanded data collection to better define the problem

Questions?

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