2013 Annual Revision Cycle

Report on Proposals

A compilation of NFPA® Technical Committee Reports on Proposals for public review and comment

Public Comment Deadline: August 31, 2012

NOTE: The proposed NFPA documents addressed in this Report on Proposals (ROP) and in a follow-up Report on Comments (ROC) will only be presented for action when proper Amending Motions have been submitted to the NFPA by the deadline of April 5, 2013. The June 2013 NFPA Conference & Expo will be held June 10–13, 2013, at McCormick Place Convention Center, Chicago, IL. During the meeting, the Association Technical Meeting (Tech Session) will be held June 12–13, 2013. Documents that receive no motions will not be presented at the meeting and instead will be forwarded directly to the Standards Council for action on issuance. For more information on the rules and for up-to-date information on schedules and deadlines for processing NFPA documents, check the NFPA website (www.nfpa.org) or contact NFPA Standards Administration.

National Fire Protection Association®
1 BATTERYMARCH PARK, QUINCY, MA 02169-7471

ISSN 1079-5332

Information on NFPA Codes and Standards Development

I. Applicable Regulations. The primary rules governing the processing of NFPA documents (codes, standards, recommended practices, and guides) are the NFPA *Regulations Governing Committee Projects (Regs)*. Other applicable rules include NFPA *Bylaws*, NFPA *Technical Meeting Convention Rules*, NFPA *Guide for the Conduct of Participants in the NFPA Standards Development Process*, and the NFPA *Regulations Governing Petitions to the Board of Directors from Decisions of the Standards Council*. Most of these rules and regulations are contained in the *NFPA Directory*. For copies of the *Directory*, contact Codes and Standards Administration at NFPA Headquarters; all these documents are also available on the NFPA website at "www.nfpa.org."

The following is general information on the NFPA process. All participants, however, should refer to the actual rules and regulations for a full understanding of this process and for the criteria that govern participation.

II. Technical Committee Report. The Technical Committee Report is defined as "the Report of the Technical Committee and Technical Correlating Committee (if any) on a document consisting of the ROP and ROC." A Technical Committee Report consists of the Report on Proposals (ROP), as modified by the Report on Comments (ROC), published by the Association.

III. Step 1: Report on Proposals (ROP). The ROP is defined as "a report to the Association on the actions taken by Technical Committees and/or Technical Correlating Committees, accompanied by a ballot statement and one or more proposals on text for a new document or to amend an existing document." Any objection to an action in the ROP must be raised through the filing of an appropriate Comment for consideration in the ROC or the objection will be considered resolved.

IV. Step 2: Report on Comments (ROC). The ROC is defined as "a report to the Association on the actions taken by Technical Committees and/or Technical Correlating Committees accompanied by a ballot statement and one or more comments resulting from public review of the Report on Proposals (ROP)." The ROP and the ROC together constitute the Technical Committee Report. Any outstanding objection following the ROC must be raised through an appropriate Amending Motion at the Association Technical Meeting or the objection will be considered resolved.

V. Step 3a: Action at Association Technical Meeting. Following the publication of the ROC, there is a period during which those wishing to make proper Amending Motions on the Technical Committee Reports must signal their intention by submitting a Notice of Intent to Make a Motion. Documents that receive notice of proper Amending Motions (Certified Amending Motions) will be presented for action at the annual June Association Technical Meeting. At the meeting, the NFPA membership can consider and act on these Certified Amending Motions as well as Follow-up Amending Motions, that is, motions that become necessary as a result of a previous successful Amending Motion. (See 4.6.2 through 4.6.9 of *Regs* for a summary of the available Amending Motions and who may make them.) Any outstanding objection following action at an Association Technical Meeting (and any further Technical Committee consideration following successful Amending Motions, see *Regs* at 4.7) must be raised through an appeal to the Standards Council or it will be considered to be resolved.

VI. Step 3b: Documents Forwarded Directly to the Council. Where no Notice of Intent to Make a Motion (NITMAM) is received and certified in accordance with the Technical Meeting Convention Rules, the document is forwarded directly to the Standards Council for action on issuance. Objections are deemed to be resolved for these documents.

VII. Step 4a: Council Appeals. Anyone can appeal to the Standards Council concerning procedural or substantive matters related to the development, content, or issuance of any document of the Association or on matters within the purview of the authority of the Council, as established by the *Bylaws* and as determined by the Board of Directors. Such appeals must be in written form and filed with the Secretary of the Standards Council (see 1.6 of *Regs*). Time constraints for filing an appeal must be in accordance with 1.6.2 of the *Regs*. Objections are deemed to be resolved if not pursued at this level.

VIII. Step 4b: Document Issuance. The Standards Council is the issuer of all documents (see Article 8 of *Bylaws*). The Council acts on the issuance of a document presented for action at an Association Technical Meeting within 75 days from the date of the recommendation from the Association Technical Meeting, unless this period is extended by the Council (see 4.8 of *Regs*). For documents forwarded directly to the Standards Council, the Council acts on the issuance of the document at its next scheduled meeting, or at such other meeting as the Council may determine (see 4.5.6 and 4.8 of *Regs*).

IX. Petitions to the Board of Directors. The Standards Council has been delegated the responsibility for the administration of the codes and standards development process and the issuance of documents. However, where extraordinary circumstances requiring the intervention of the Board of Directors exist, the Board of Directors may take any action necessary to fulfill its obligations to preserve the integrity of the codes and standards development process and to protect the interests of the Association. The rules for petitioning the Board of Directors can be found in the *Regulations Governing Petitions to the Board of Directors from Decisions of the Standards Council* and in 1.7 of the *Regs*.

X. For More Information. The program for the Association Technical Meeting (as well as the NFPA website as information becomes available) should be consulted for the date on which each report scheduled for consideration at the meeting will be presented. For copies of the ROP and ROC as well as more information on NFPA rules and for up-to-date information on schedules and deadlines for processing NFPA documents, check the NFPA website (www.nfpa.org) or contact NFPA Codes & Standards Administration at (617) 984-7246.

2013 Annual Revision Cycle ROP Contents

by NFPA Numerical Designation

Note: Documents appear in numerical order.

TYPES OF ACTION

P Partial Revision **N** New Document **R** Reconfirmation **W** Withdrawal

2013 Annual Revision Cycle ROP
Committees Reporting

COMMITTEE MEMBER CLASSIFICATIONS[1,2,3,4]

The following classifications apply to Committee members and represent their principal interest in the activity of the Committee.

1. M Manufacturer: A representative of a maker or marketer of a product, assembly, or system, or portion thereof, that is affected by the standard.

2. U User: A representative of an entity that is subject to the provisions of the standard or that voluntarily uses the standard.

3. IM Installer/Maintainer: A representative of an entity that is in the business of installing or maintaining a product, assembly, or system affected by the standard.

4. L Labor: A labor representative or employee concerned with safety in the workplace.

5. RT Applied Research/Testing Laboratory: A representative of an independent testing laboratory or independent applied research organization that promulgates and/or enforces standards.

6. E Enforcing Authority: A representative of an agency or an organization that promulgates and/or enforces standards.

7. I Insurance: A representative of an insurance company, broker, agent, bureau, or inspection agency.

8. C Consumer: A person who is or represents the ultimate purchaser of a product, system, or service affected by the standard, but who is not included in (2).

9. SE Special Expert: A person not representing (1) through (8) and who has special expertise in the scope of the standard or portion thereof.

NOTE 1: “Standard” connotes code, standard, recommended practice, or guide.

NOTE 2: A representative includes an employee.

NOTE 3: While these classifications will be used by the Standards Council to achieve a balance for Technical Committees, the Standards Council may determine that new classifications of member or unique interests need representation in order to foster the best possible Committee deliberations on any project. In this connection, the Standards Council may make such appointments as it deems appropriate in the public interest, such as the classification of “Utilities” in the National Electrical Code Committee.

NOTE 4: Representatives of subsidiaries of any group are generally considered to have the same classification as the parent organization.

FORM FOR COMMENT ON NFPA REPORT ON PROPOSALS
2013 Annual Revision CYCLE
FINAL DATE FOR RECEIPT OF COMMENTS: 5:00 pm EDST, August 31, 2012

For further information on the standards-making process, please contact the Codes and Standards Administration at 617-984-7249 or visit www.nfpa.org/codes.

For technical assistance, please call NFPA at 1-800-344-3555.

FOR OFFICE USE ONLY

Log #: _____

Date Rec'd: _____

Please indicate in which format you wish to receive your ROP/ROC ☐ **electronic** ☐ **paper** ☒ **download**
(Note: If choosing the download option, you must view the ROP/ROC from our website; no copy will be sent to you.)

Date 8/1/200X **Name** John B. Smith **Tel. No.** 253-555-1234

Company _____ **Email** _____

Street Address 9 Seattle St. **City** Tacoma **State** WA **Zip** 98402

******If you wish to receive a hard copy, a street address MUST be provided. Deliveries cannot be made to PO boxes.***

Please indicate organization represented (if any) Fire Marshals Assn. of North America

1. (a) NFPA Document Title National Fire Alarm Code **NFPA No. & Year** NFPA 72, 200X ed.

(b) Section/Paragraph 4.4.1.1

2. Comment on Proposal No. (from ROP): 72-7

3. Comment Recommends (check one): ☐ new text ☐ revised text ☒ deleted text

4. Comment (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Delete exception.

5. Statement of Problem and Substantiation for Comment: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Comment, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

A properly installed and maintained system should be free of ground faults. The occurrence of one or more ground faults should be required to cause a 'trouble' signal because it indicates a condition that could contribute to future malfunction of the system. Ground fault protection has been widely available on these systems for years and its cost is negligible. Requiring it on all systems will promote better installations, maintenance and reliability.

6. Copyright Assignment

(a) ☒ **I am the author of the text or other material (such as illustrations, graphs) proposed in the Comment.**

(b) ☐ **Some or all of the text or other material proposed in this Comment was not authored by me. Its source is as follows:** (please identify which material and provide complete information on its source)

_____

I hereby grant and assign to the NFPA all and full rights in copyright in this Comment and understand that I acquire no rights in any publication of NFPA in which this Comment in this or another similar or analogous form is used. Except to the extent that I do not have authority to make an assignment in materials that I have identified in (b) above, I hereby warrant that I am the author of this Comment and that I have full power and authority to enter into this assignment.

Signature (Required) John B Smith

PLEASE USE SEPARATE FORM FOR EACH COMMENT

Mail to: Secretary, Standards Council · National Fire Protection Association
1 Batterymarch Park · Quincy, MA 02169-7471 OR
Fax to: (617) 770-3500 OR Email to: proposals_comments@nfpa.org

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2013 Annual Revision CYCLE
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FOR OFFICE USE ONLY

Log #: _____

Date Rec'd: _____

Please indicate in which format you wish to receive your ROP/ROC ☐ **electronic** ☐ **paper** ☐ **download**
(Note: If choosing the download option, you must view the ROP/ROC from our website; no copy will be sent to you.)

Date _____ **Name** _____ **Tel. No.** _____

Company _____ **Email** _____

Street Address _____ **City** _____ **State** _____ **Zip** _____

******If you wish to receive a hard copy, a street address MUST be provided. Deliveries cannot be made to PO boxes.***

Please indicate organization represented (if any) _____

1. (a) NFPA Document Title _____ **NFPA No. & Year** _____

(b) Section/Paragraph _____

2. Comment on Proposal No. (from ROP): _____

3. Comment Recommends (check one): ☐ new text ☒ revised text ☐ deleted text

4. Comment (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

5. Statement of Problem and Substantiation for Comment: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Comment, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

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(b) ☐ **Some or all of the text or other material proposed in this Comment was not authored by me. Its source is as follows:** (please identify which material and provide complete information on its source)

_____

I hereby grant and assign to the NFPA all and full rights in copyright in this Comment and understand that I acquire no rights in any publication of NFPA in which this Comment in this or another similar or analogous form is used. Except to the extent that I do not have authority to make an assignment in materials that I have identified in (b) above, I hereby warrant that I am the author of this Comment and that I have full power and authority to enter into this assignment.

Signature (Required) _____

PLEASE USE SEPARATE FORM FOR EACH COMMENT

Mail to: Secretary, Standards Council · National Fire Protection Association
1 Batterymarch Park · Quincy, MA 02169-7471 OR
Fax to: (617) 770-3500 OR Email to: proposals_comments@nfpa.org

Sequence of Events Leading to Issuance of an NFPA Committee Document

Step 1 Call for Proposals

▼ Proposed new document or new edition of an existing document is entered into one of two yearly revision cycles, and a Call for Proposals is published.

Step 2 Report on Proposals (ROP)

▼ Committee meets to act on Proposals, to develop its own Proposals, and to prepare its Report.

▼ Committee votes by written ballot on Proposals. If two-thirds approve, Report goes forward. Lacking two-thirds approval, Report returns to Committee.

▼ Report on Proposals (ROP) is published for public review and comment.

Step 3 Report on Comments (ROC)

▼ Committee meets to act on Public Comments to develop its own Comments, and to prepare its report.

▼ Committee votes by written ballot on Comments. If two-thirds approve, Report goes forward. Lacking two-thirds approval, Report returns to Committee.

▼ Report on Comments (ROC) is published for public review.

Step 4 Association Technical Meeting

▼ *"Notices of intent to make a motion"* are filed, are reviewed, and valid motions are certified for presentation at the Association Technical Meeting. ("Consent Documents" that have no certified motions bypass the Association Technical Meeting and proceed to the Standards Council for issuance.)

▼ NFPA membership meets each June at the Association Technical Meeting and acts on Technical Committee Reports (ROP and ROC) for documents with "certified amending motions."

▼ Committee(s) vote on any amendments to Report approved at NFPA Annual Membership Meeting.

Step 5 Standards Council Issuance

▼ Notification of intent to file an appeal to the Standards Council on Association action must be filed within 20 days of the NFPA Annual Membership Meeting.

▼ Standards Council decides, based on all evidence, whether or not to issue document or to take other action, including hearing any appeals.

The Association Technical Meeting

The process of public input and review does not end with the publication of the ROP and ROC. Following the completion of the Proposal and Comment periods, there is yet a further opportunity for debate and discussion through the Association Technical Meeting that takes place at the NFPA Annual Meeting.

The Association Technical Meeting provides an opportunity for the final Technical Committee Report (i.e., the ROP and ROC) on each proposed new or revised code or standard to be presented to the NFPA membership for the debate and consideration of motions to amend the Report. The specific rules for the types of motions that can be made and who can make them are set forth in NFPA's rules, which should always be consulted by those wishing to bring an issue before the membership at an Association Technical Meeting. The following presents some of the main features of how a Report is handled.

The Filing of a Notice of Intent to Make a Motion. Before making an allowable motion at an Association Technical Meeting, the intended maker of the motion must file, in advance of the session, and within the published deadline, a Notice of Intent to Make a Motion. A Motions Committee appointed by the Standards Council then reviews all notices and certifies all amending motions that are proper. The Motions Committee can also, in consultation with the makers of the motions, clarify the intent of the motions and, in certain circumstances, combine motions that are dependent on each other together so that they can be made in one single motion. A Motions Committee report is then made available in advance of the meeting listing all certified motions. Only these Certified Amending Motions, together with certain allowable Follow-Up Motions (that is, motions that have become necessary as a result of previous successful amending motions) will be allowed at the Association Technical Meeting.

Consent Documents. Often there are codes and standards up for consideration by the membership that will be noncontroversial and no proper Notices of Intent to Make a Motion will be filed. These "Consent Documents" will bypass the Association Technical Meeting and head straight to the Standards Council for issuance. The remaining documents are then forwarded to the Association Technical Meeting for consideration of the NFPA membership.

What Amending Motions Are Allowed. The Technical Committee Reports contain many Proposals and Comments that the Technical Committee has rejected or revised in whole or in part. Actions of the Technical Committee published in the ROP may also eventually be rejected or revised by the Technical Committee during the development of its ROC. The motions allowed by NFPA rules provide the opportunity to propose amendments to the text of a proposed code or standard based on these published Proposals, Comments, and Committee actions. Thus, the list of allowable motions include motions to accept Proposals and Comments in whole or in part as submitted or as modified by a Technical Committee action. Motions are also available to reject an accepted Comment in whole or part. In addition, Motions can be made to return an entire Technical Committee Report or a portion of the Report to the Technical Committee for further study.

The NFPA Annual Meeting, also known as the NFPA Conference & Expo, takes place in June of each year. A second Fall membership meeting was discontinued in 2004, so the NFPA Technical Committee Report Session now runs once each year at the Annual Meeting in June.

Who Can Make Amending Motions. NFPA rules also define those authorized to make amending motions. In many cases, the maker of the motion is limited by NFPA rules to the original submitter of the Proposal or Comment or his or her duly authorized representative. In other cases, such as a Motion to Reject an accepted Comment, or to Return a Technical Committee Report or a portion of a Technical Committee Report for Further Study, anyone can make these motions. For a complete explanation, the NFPA Regs should be consulted.

Action on Motions at the Association Technical Meeting. In order to actually make a Certified Amending Motion at the Association Technical Meeting, the maker of the motion must sign in at least an hour before the session begins. In this way a final list of motions can be set in advance of the session. At the session, each proposed document up for consideration is presented by a motion to adopt the Technical Committee Report on the document. Following each such motion, the presiding officer in charge of the session opens the floor to motions on the document from the final list of Certified Amending Motions followed by any permissible Follow-Up Motions. Debate and voting on each motion proceeds in accordance with NFPA rules. NFPA membership is not required in order to make or speak to a motion, but voting is limited to NFPA members who have joined at least 180 days prior to the Association Technical Meeting and have registered for the meeting. At the close of debate on each motion, voting takes place, and the motion requires a majority vote to carry. In order to amend a Technical Committee Report, successful amending motions must be confirmed by the responsible Technical Committee, which conducts a written ballot on all successful amending motions following the meeting and prior to the document being forwarded to the Standards Council for issuance.

Standards Council Issuance

One of the primary responsibilities of the NFPA Standards Council, as the overseer of the NFPA codes and standards development process, is to act as the official issuer of all NFPA codes and standards. When it convenes to issue NFPA documents, it also hears any appeals related to the document. Appeals are an important part of assuring that all NFPA rules have been followed and that due process and fairness have been upheld throughout the codes and standards development process. The Council considers appeals both in writing and through the conduct of hearings at which all interested parties can participate. It decides appeals based on the entire record of the process as well as all submissions on the appeal. After deciding all appeals related to a document before it, the Council, if appropriate, proceeds to issue the document as an official NFPA code or standard. Subject only to limited review by the NFPA Board of Directors, the decision of the Standards Council is final, and the new NFPA code or standard becomes effective twenty days after Standards Council issuance.

Report of the Committee on

Inspection, Testing, and Maintenance of Water-Based Systems

William E. Koffel, *Chair*
Koffel Associates, Inc., MD [SE]

Clement J. Adams, Chubb Group of Insurance Companies, PA [I]
Gary S. Andress, Liberty Mutual Property, MA [I]
Kerry M. Bell, Underwriters Laboratories Inc., IL [RT]
Michael J. Bosma, The Viking Corporation, MI [M]
Rep. National Fire Sprinkler Association
John K. Bouchard, Chartis Insurance, MA [I]
David Doudy, City of Farmington Fire Department, NM [E]
Matthew G. Drysdale, E. I. duPont de Nemours & Company, Inc., DE [U]
Rep. NFPA Industrial Fire Protection Section
Joshua W. Elvove, US General Services Administration, CO [U]
James M. Fantauzzi, North East Fire Protection Systems Inc., NY [IM]
Rep. American Fire Sprinkler Association
James M. Feld, Feld Engineering, CA [SE]
Gary R. Field, Automatic Protection Systems Corporation, OK [IM]
Rep. National Association of Fire Equipment Distributors
Russell P. Fleming, National Fire Sprinkler Association, Inc., NY [IM]
Rep. National Fire Sprinkler Association
David B. Fuller, FM Global, MA [I]
Greg Garber, Pittsburg Tank & Tower Inc., VA [M]
Ramoth M. Iverson, City of Benicia Fire Department, CA [E]
Rep. California Fire Chiefs Association
Charles W. Ketner, National Automatic Sprinkler Fitters LU 669, MD [L]
Rep. United Assn. of Journeymen & Apprentices of the Plumbing & Pipe Fitting Industry
John Lake, City of Gainesville, FL [E]
Peter A. Larrimer, US Department of Veterans Affairs, PA [U]
Russell B. Leavitt, Telgian Corporation, AZ [U]
Rep. The Home Depot
Kenneth W. Linder, Swiss Re, CT [I]
Top Myers, Myers Risk Services, Inc., PA [SE]
Gayle Pennel, Aon Risk Solutions, IL [I]
Rep. TC on Fire Pumps
Peter Placidus Petrus, Indonesian Fire & Rescue Foundation, Indonesia [E]
Richard M. Ray, Cybor Fire Protection Company, IL [IM]
Rep. Illinois Fire Prevention Association
John F. Saidi, USDOE Stanford Site Office, CA [U]
J. William Sheppard, Sheppard & Associates, LLC, MI [SE]
Gregory R. Stein, Tank Industry Consultants, IN [SE]
Darrell W. Underwood, Underwood Fire Equipment, Inc., MI [IM]
Terry L. Victor, Tyco/SimplexGrinnell, MD [M]
John Whitney, Clarke Fire Protection Products, Inc., OH [M]

Alternates

Erik H. Anderson, Koffel Associates, Inc., MD [SE]
(Alt. to William E. Koffel)
David L. Asplund, Reliable Automatic Sprinkler Company, Inc., SC [M]
(Alt. to Michael J. Bosma)
David R. Baron, Global Fire Protection Company, IL [IM]
(Alt. to Richard M. Ray)
Tracey D. Bellamy, Telgian Corporation, GA [U]
(Alt. to Russell B. Leavitt)
Bruce H. Clarke, XL Global Asset Protection, LLC, NC [I]
(Alt. to Kenneth W. Linder)
Roland J. Huggins, American Fire Sprinkler Association, Inc., TX [IM]
(Alt. to James M. Fantauzzi)
Thomas W. LaCorte, Chubb Group of Insurance Companies, NJ [I]
(Alt. to Clement J. Adams)
George E. Laverick, Underwriters Laboratories Inc., IL [RT]
(Alt. to Kerry M. Bell)
Clayton Norred, Jr., Norred Fire Systems, LLC, LA [IM]
(Alt. to Gary R. Field)
Matthew Osburn, Canadian Automatic Sprinkler Association, Canada [IM]
(Voting Alt. to CASA Rep.)
Rep. National Association of Fire Equipment Distributors
Eric L. Packard, United Assn. of Journeymen & Apprentices of the Plumbing & Pipe Fitting Industry, MD [L]
(Alt. to Charles W. Ketner)
Damon T. Pietraz, Underwood Fire Equipment, Inc., MI [IM]
(Alt. to Darrell W. Underwood)
Robert B. Popa, Farmington Fire Department, NM [E]
(Alt. to David Doudy)
Ronald Rispoli, Entergy Corporation, AR [U]
(Voting Alt. to EEI Rep.)
George W. Stanley, Wiginton Fire Protection Engineering, Inc., FL [IM]
(Alt. to Russell P. Fleming)
Ralph Tiede, Liberty Mutual Property, MA [I]
(Alt. to Gary S. Andress)

Nonvoting

Robert G. Caputo, Fire & Life Safety America, CA [IM]
Rep. TC on Sprinkler System Installation Criteria
Rohit Khanna, US Consumer Product Safety Commission, MD [C]
Thomas F. Norton, Norel Service Company, Inc., MA [IM]
Rep. Signaling Systems Correlating Committee

Staff Liaison: **Matthew J. Klaus**

Committee Scope: This Committee shall have primary responsibility for documents on inspection, testing, and maintenance of systems utilizing water as a method of extinguishment. These include sprinkler systems (excluding sprinkler systems installed in one-and two-family dwellings and manufactured homes), standpipe and hose systems, fire service piping and appurtenances, fire pumps, water storage tanks, fixed water spray systems, foam-water systems, valves, and allied equipment. This Committee shall also develop procedures for the conduct and reporting of routine system impairments.

This list represents the membership at the time the Committee was balloted on the text of this report. Since that time, changes in the membership may have occurred. A key to classifications is found at the front of the document.

The Report of the Technical Committee on **Inspection, Testing, and Maintenance of Water-Based Systems** is presented for adoption.

This Report was prepared by the **Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems** and proposes for adoption, amendments to NFPA 25, **Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,** 2011 edition. NFPA 25-2011 is published in Volume 3 of the 2012 National Fire Codes and in separate pamphlet form.

This Report has been submitted to letter ballot of the **Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,** which consists of 33 voting members. The results of the balloting, after circulation of any negative votes, can be found in the report.

25-1 Log #1 **Final Action: Reject**
(Entire Document)

Note: This proposal appeared as Comment 25-1 (Log #127) which was held from the Annual 2010 ROC on Proposal 25-2.
Submitter: Jesus M. Carrasquillo, S&S Fire Suppression Systems Inc.
Recommendation: New text to read as follows:
In the General Requirements section of NFPA 25 it should indicate as when inspections and testing is to begin in relation to when the system was place in service. System inspections are to begin immediately after the system is placed in service to meet minimum requirements set by the standard.
Handbook Note:
Building owners are often misinformed and confused with the installation warranty of the system (one year) and the minimum inspection requirements set by NFPA 25.
Substantiation: None provided.
Committee Meeting Action: Reject
Committee Statement: The submitter did not provide a substantiation or specific proposed language.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-2 Log #CP1 **Final Action: Accept in Principle**
(Entire Document)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Review entire document to: 1) Update any extracted material by preparing separate proposals to do so, and 2) review and update references to other organizations documents, by preparing proposal(s) as required.
Substantiation: To conform to the NFPA Regulations Governing Committee Projects.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
2.2 NFPA Publications. NFPA 11, Standard for Low-, Medium-, and High-Expansion Foam, 2010 edition.
NFPA 13, Standard for the Installation of Sprinkler Systems, 2010 edition.
NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, 2010 edition.
NFPA 14, Standard for the Installation of Standpipe and Hose Systems, 2010 edition.
NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection, 2007 edition.
NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems, 2007 edition.
NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, 2010 edition.
NFPA 22, Standard for Water Tanks for Private Fire Protection, 2008 edition.
NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances, 2010 edition.
NFPA 72, National Fire Alarm and Signaling Code, 2010 edition.
NFPA 110, Standard for Emergency and Standby Power Systems, 2010 edition.
NFPA 307, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves, 2011 edition.
NFPA 409, Standard on Aircraft Hangars, 2011 edition.
NFPA 1962, Standard for the Inspection, Care, and Use of Fire Hose, couplings, and Nozzles and the Service Testing of Fire Hose, 2008 edition.
ASTM D 3359, Standard Test Methods for measuring Adhesion by Tape Test, 2008.
Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.
2.4 References for Extracts in Mandatory Sections.
NFPA 11, Standard for Low-, Medium-, and High-Expansion Foam, 2010 edition.
NFPA 13, Standard for the Installation of Sprinkler Systems, 2010 edition.
NFPA 14, Standard for the Installation of Standpipe and Hose Systems, 2010 edition.
NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection, 2007 edition.
NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems, 2007 edition.
NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, 2010 edition.
NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances, 2010 edition.
NFPA 97, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, 2011 edition.
NFPA 750, Standard on Water Mist Fire Protection Systems, 2010 edition.
NFPA 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities, 2008 edition.
NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas, 2008 edition.
Committee Statement: The Technical Committee will review prior to the ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-3 Log #242 **Final Action: Accept in Principle**
(Entire Document)

Submitter: David J. Burkhart, Code Consultants, Inc.
Recommendation: Revise Section 3.3.7 to read:
3.3.7.1 ***Main Drain***. The primary drain connection located on the system riser ~~and also utilized as a flow test connection.~~
Add Section 3.3.36 to read:
3.3.36 ***Test Connection***. A point in the system where water is discharged for purposes of testing a portion of the system. These connections can include the main drain, inspector's test connection, fire pump test header, backflow preventer test valves, fire hydrant and other similar locations.
Revise Table 5.1.1.2 to read:
Item Frequency Reference
~~Main Drain Table 13.1~~
Water Supply Annually 5.3.5
Renumber 13.2.5 to 5.3.5 and revise to read:
~~**13.2.5**~~ **5.3.5 Water Supply** ~~**Main Drain**~~ **Test.** A ~~main drain~~ water supply test shall be conducted annually ~~at each water-based fire protection system riser~~ for each water supply lead-in to determine whether there has been a change in the condition of the water supply piping ~~and control valves.~~
Delete section 13.2.5.1:
~~**13.2.5.1** In systems where the sole water supply is through a backflow preventer and/or pressure reducing valves, the main drain test of at least one system downstream of the device shall be conducted on a quarterly basis.~~
Renumber 13.2.5.2 to 5.3.5.1 without revision:
~~**13.2.5.2**~~ **5.3.5.1** Where there is a 10 percent reduction in full flow pressure when compared to the original acceptance test or previously performed tests, the cause of the reduction shall be identified and corrected if necessary.
Add section 5.3.5.2 to read:
5.3.5.2 Main drains, backflow prevention test valves, fire pump test headers or dedicated test connections shall be permitted to meet the requirements of 5.3.5.
Revise section 5.5.2 to read:
5.5.2 ~~A main drain test shall be required~~ if the system control or other upstream valve was operated ~~in accordance with 13.3.3.4~~ water shall be discharged downstream of the valve to ensure water continuity.
Revise Table 5.5.1 as follows:
Component Adjust Repair/Recondition Replace Required Action
~~Main Drain X X X Main drain test~~
Revise section 6.3.1.5 to read:
6.3.1.5 A ~~main drain~~ water supply test shall be performed on all standpipe systems with automatic water supplies ~~in accordance with the requirements of Chapter 13~~. for each water supply lead-in to determine whether there has been a change in the condition of the water supply piping.
Delete section 6.3.1.5.1
~~**6.3.1.5.1** The test shall be performed at the low point drain for each standpipe or the main drain test connection where the supply main enters the building (when provided).~~
Add new section 6.3.1.5.1 to read:
6.3.1.5.1 Main drains, backflow prevention test valves, hose valves or dedicated test connections shall be permitted to meet the requirements of 6.3.1.5.
Add new section 6.3.1.5.2 to read:
6.3.1.5.2 Where there is a 10 percent reduction in full flow pressure when compared to the original acceptance test or previously performed tests, the cause of the reduction shall be identified and corrected if necessary.
Revise Table 6.1.1.2 to read:
Item Frequency Reference
~~Main Drain Table 13.1~~
Water Supply Test Annually 6.3.1.5
Revise Table 6.5.1 as follows:
Component Adjust Repair/Recondition Replace Required Action
~~Main Drain X X X Check for leaks and residual pressure during Main drain test~~
Add Section 7.5.1.1 to read:
7.5.1.1 Once a control valve is opened to place a component back into service, water shall be discharged downstream of the valve to ensure water continuity.
Delete Sections 7.5.3 and 7.5.3.1
~~**7.5.3** A main drain test shall be required if the system control or other upstream valve was operated.~~
~~**7.5.3.1** Where a main drain is not provided, other equivalent meams of flow testing shall be permitted.~~
Revise section 9.6.3 to read:
9.6.3 ~~A main drain test shall be required~~ if the system control or other upstream valve was operated ~~in accordance with 13.3.3.4~~ water shall be discharged downstream of the valve to ensure water continuity.
Revise section 10.3.7.1.1 to read:
10.3.7.1.1 ~~Main drain~~ Water supply tests shall be conducted at the main riser to determine whether there has been any change in the condition of the water supply piping ~~and controlling valve~~.

Revise Table 10.5.1 as follows:

Component Adjust Repair/Recondition Replace Required Action

~~Main Drain X X X Full flow Main drain test~~

~~Auxiliary Drain X X X (1) check for leaks at system working pressure (2) Main drain test~~

Revise section 11.5.3 to read:

11.5.3 ~~A main drain test shall be required~~ if the system control or other upstream valve was operated ~~in accordance with 13.3.3.4~~ water shall be discharged downstream of the valve to ensure water continuity.

Revise section 13.3.1.2.1 to read:

13.3.1.2.1 When the valve is returned to service~~, a drain test (either main or sectional drain, as appropriate) shall be conducted to determine that the valve is opened.~~ water shall be discharged downstream of the valve to ensure water continuity.

Delete section 13.3.3.4

~~**13.3.3.4** A main drain test shall be conducted any time the control valve is closed and reopened at system riser.~~

Revise section 13.8.3 to read:

13.8.3 ~~A main drain test shall be conducted in accordance with 13.3.3.4~~ if the system control or other upstream valve was operated water shall be discharged downstream of the valve to ensure water continuity.

Revise Table 13.8.1 by eliminating all references to main drain test.

Revise section A.13.2.5 to A.5.3.5 to read:

~~**A.13.2.5**~~ **A.5.3.5** Main drains are installed on system risers for one principal reason: to drain water from the overhead piping after the system is shut off. This allows the contractor or plant maintenance department to perform work on the system or to replace nozzles after a fire or other incident involving system operation.

~~The test for standpipe systems should be done at the low-point drain for each standpipe or the main drain test connection where the supply main enters the building.~~

The main drain is only one of many test connections that can be used to provide a water supply test to give an indication ~~These drains also are used to determine~~ whether there is a major reduction in waterflow to the system, such as could be caused by a major obstruction, a dropped gate, a valve that is almost fully closed, or a check valve clapper stuck to the valve seat.

A satisfactory ~~drain~~ water supply test (i.e. one that reflects the results of previous tests) does not necessarily indicate an obstructed passage, nor does it prove that all valves in the upstream flow of water are fully opened. However, these tests provide a reasonable level of confidence that the water supply has not been compromised.

The performance of drain tests is not a substitute for a valve check on 100 percent of the fire protection valves ~~valving~~.

The main drain test is conducted in the following manner:

(1) Record the pressure indicated by the supply water gauge.

(2) Close the alarm control valve on alarm valves

(3) Fully open the drain valve

(4) After the flow has been stabilized, record the residual (flowing) pressure indicated by the water supply gauge.

(5) Close the main drain valve slowly.

(6) Record the time taken for the supply water pressure to return to the original static (nonflowing) pressure.

(7) Open the alarm valve.

Substantiation: "A satisfactory drain test (i.e. one that reflects the results of previous tests) does not necessarily indicate an obstructed passage, nor does it prove that all valves in the upstream flow of water
are fully opened. "

This is a quote from the current annex material. It says a lot about the value of these tests, yet the entire standard has been polluted with "Main Drain" tests to the point of absurdity. Some of the requirements for main drain tests don't even make any sense.

Some of the tables require a main drain test to be performed if you adjust a main drain! It is unreasonable to think that a main drain test needs to be run every time a valve is exercised.

If any owner is contracting to have his system maintained in accordance with NFPA 25, then the valves should be in good enough shape that these tests are unnecessary, and if the owner does
not maintain to NFPA 25, then they won't get done anyhow.

The legal ramifications are so great as compared to the cost/benefit of these tests, that the committee is putting an undue burden on unsuspecting property owners.

In a time where water resources are being stretched, it is a total waste of water resources to do this many "main drain" tests. The committee needs to think GREEN.

History:

Until the 1991 edition of NFPA 13, there was a requirement for a "Waterflow Test Connection". (See Supporting Material) Additionally, Section 4-5.3.4.4 of NFPA 13-19 9 (See Supporting Material) also allowed the use of main drain as this test connection, but they were not necessarily one in the same. At this time, there were relatively few backflow preventers on fire protection systems and 95% of the systems used the Main Drain as the test connection. The exception was when a fire pump test header was available. This resulted in the use of the slang "Main Drain Test" which was common in the field.

In the fall 1993 code cycle a proposal 13-103 (See Supporting Material) was submitted by Jeff Cisney of the Department of Veterans Affairs. This proposal indicated that "Test connections shall be sized in accordance with table 4-5.3.4.2". His substantiation was to ensure that the test connection had a minimum size. The committee action was A.I.P. which gave birth to the term "Main Drain Test Connection" in NFPA 13. However, the intent was not changed and the committee was trying to distinguish between the water supply test and the "Inspector's Alarm Test". The origination of this language stems to the original version of NFPA 25.

In the spring 1996 cycle of NFPA 13, a proposal 13-23 (See Supporting Material) was submitted by Ken Isman of the National Fire Sprinkler Association. The committee action was A.I.P and the requirement to have a means to full flow the backflow preventer was established.

In the fall 1997 cycle of NFPA 25, a proposal 25-18 (See Supporting Material) was submitted by Roland Huggins of the American Fire Sprinkler Association. The proposal added a main drain test for class II and Class III standpipes because the standpipes could be used in lieu of 50% of the required fire extinguishers per NFPA 10. The language suggests this drain was intended only to measure the water supply flow for standpipe systems that were not combined systems. At this time a requirement for a "Main Drain" on standpipe systems did not exist. A typical design would have the isolation valve at the ceiling level with drainage accomplished by opening the first floor hose outlet. The committee action was A.I.P. and resulted in a quarterly test for all automatic standpipes regardless if they were Class I, II, or III. The annex language reveals the committee's intent for this test. Also the negative vote by Munno should be noted.

In the fall 2002 cycle of NFPA 14, a proposal 14-38 (See Supporting Material) was submitted by the technical committee to add the main drain requirement to NFPA 14. The substantiation was not technical in nature; however, provided a requirement for a main drain in NFPA 14. No guidance is provided to where on the system the main drain is to be located other than "at locations that will permit flow tests of water supply connections". This would be consistent with a location near the incoming water service.

Like so many experiences I have had in fire protection, the NFPA 25 committee has been guilty of allowing "code creep". The subtle changes over time with misapplication of the original intent add up.

I have clients who have been cited for not performing a "Main Drain" test on all there risers and all their standpipes even though there is only one in-coming water service to the building. In some buildings this could be as many as eight tests. It is our contention that only one test is needed to ensure the non-degradation of the water supply. Citations have also been issued to my clients for not having main drains on the standpipes, even though they were installed prior to 2002, because NFPA 25 requires the test.

The evolution of the sprinkler system now allows for multiple methods to test the water supply; the main drain, the backflow preventer test connection, the fire pump test header or a standpipe/hose outlet.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Accept in Principle

Committee Statement: See Committee Action on proposal 25-244 (Log #CP12). The technical committee does not feel it is appropriate to use the ITC for the valve status test as the ITC doesn't flow a sufficient amount of water to gauge flow. It's also a common procedure to open the ITC when opening the valve and therefore doesn't make sense to go back and open it again. The referenced Committee Proposal provides distinction between a test to determine whether or not valves are open and a test where flow is measured.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

Comment on Affirmative:

LARRIMER, P.: I disagree with the committee statement on the appropriateness of using the inspectors test connection to perform a valve status test. In many cases, the main drain will only be 1/4 inch larger than the ITC valve (3/4 inch vs. 1/2 inch) and there is no "sufficient amount" of water that needs to be flowed to conduct this test. The committee proposal (25-244) does allow the use of the ITC as indicated in the new annex material for that proposal.

25-4 Log #CP8 **Final Action: Accept**

(Entire Document)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,

Recommendation: Update references to "Table 13.1" throughout the standard to refer to "13.1.1.2".

Substantiation: Editorial Change. There is no Table 13.1. The appropriate Table reference should be 13.1.1.2.

Committee Meeting Action: Accept

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-5 Log #CP11 **Final Action: Accept**

(Entire Document)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,

Recommendation: Delete sections in the individual system chapters (Chapters 5 through 13) referring to:

Notification to Supervisory Service. To avoid false alarms where a supervisory service is provided, the alarm receiving facility shall be notified by the property owner or designated representative as follows:

(1) Before conducting any test or procedure that could result in the activation of an alarm

(2) After such tests or procedures are concluded

This text should remain in Chapter 4.

Substantiation: In previous editions of NFPA 25 this language exists throughout various systems chapters. This language is provided in Chapter 4 under as a general requirement for the owner and and does not need to be repeated throughout the standard.

Committee Meeting Action: Accept

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-6 Log #CP18 **Final Action: Accept**

(Entire Document)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,

Recommendation: Add the following definitions to NFPA 25:

ADJUST: To maintain or regulate, within prescribed limits, by setting the operating characteristics to specified parameters. (From NFPA Glossary 1915 preferred)

CLEAN: To remove dirt, scale and debris.

INSPECT: See "Inspection".

REBUILD: To restore working condition by replacement or repair of worn or damaged parts.

REMOVE: To physically take away or eliminate.

REPAIR: Restore to sound working condition or to fix damage.

REPLACE: To remove a component and install a new or equivalent component.

TEST: The operation of a device to verify that it is functioning correctly or the measurement of a system characteristic to determine if it meets requirements.

Global search and replace in NFPA 25 for the following terms:

~~CHECK~~: Drop the term "check" through out the standard and replace with the term "Inspect".

Note: Where the term "check" is used as a verb, the term needs to be replaced with "inspect". DO NOT replace the term "check" where used as part of the term "check valve".

~~CHANGE~~: Drop the term "change" throughout the standard and replace with the term "Replace".

~~RECONDITION~~: Drop the "recondition" throughout the standard and replace with the term "Repair".**Substantiation:** During the cycle that prepared the 2011 edition, a task group was established to address definitions in Annex C.

Committee Meeting Action: Accept

Number Eligible to Vote: 33

Ballot Results: Affirmative: 32 Negative: 1

Explanation of Negative:

FANTAUZZI, J.: I have some reservation about the use of "equivalent component". Equivalent should be replace with reconditioned since it is allowed by NFPA 13 for new systems.

25-7 Log #CP13 **Final Action: Accept**

(1.1)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,

Recommendation: Revise 1.1 to read as follows:

1.1 Scope. This document establishes the minimum requirements for the periodic inspection, testing, and maintenance of water-based fire protection systems, and 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.

Split existing annex A.1.1(2011 Edition) into two parts; the list of standards and the narrative paragraph following that list.

Move the existing list in A.1.1 to A.1.1.3

Move the existing narrative paragraph in A.1.1 starting with "For systems..." to A.1.1.4

This action will eliminate A.1.1

Substantiation: Per a recommendation from the NFPA Standards Council, the Committee has reviewed the document scope and recognizes that, since hazard evaluations as addressed in 4.1.5 and 4.1.6 are not part of typical inspection, testing and maintenance activities, they should also be mentioned within the published scope of the document.

Committee Meeting Action: Accept

Number Eligible to Vote: 33

Ballot Results: Affirmative: 27 Negative: 6

Explanation of Negative:

DRYSDALE, M.: The existing scope statement should be retained and Sections 4.1.5 and 4.1.6 should be removed. This document should focus on the physical inspection, testing and maintenance of systems.

ELVOVE, J.: I don't agree that the scope of NFPA 25 should extend beyond the requirements of inspection, testing and maintenance, however, since the majority of the committee continues to reject proposals to remove existing non-ITM language such as sections 4.1.5 and 4.1.6, which pertain to changes in occupancy, use, processes, materials, hazards or water supplies, it's becoming fruitless to object. But if 4.1.5 and 4.1.6 are to remain, the document scope needs to go further and specifically include language stating that the intent of the document is to assure that water based fire protection systems will perform as intended (i.e., as designed and installed); without this language and without additional revisions that continually get rejected, there's no guarantee a water based fire protection system will either extinguish or control a fire and thus there's really no point in using this standard. A few additional comments. The revised text contained in this proposal does not delineate what changes were made actually made to paragraph 1.1 (i.e., it wasn't written in legislative text so the public can clearly see both new and deleted text). In addition, the substantiation does not state why text addressing "land based and marine applications" was purposely deleted. But more importantly, the committee's substantiation stating: "are not part of typical inspection, testing and maintenance activities" is NOT why a task group of the committee rewrote the document scope. The reason for adding the new text to the document scope was only to give provide scope language that gives reason for keeping the language contained in 4.1.5 and 4.1.6 within the document and not to delineate what is or isn't part of a typical ITM activities.

LARRIMER, P.: I disagree with the change to the scope of the document. The new scope item "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" is outside the scope of this document. Those actions are covered in other documents such as the building code or fire code. Considering that NFPA 25 does not establish any criteria that the ITM inspector is to follow to determine when there are changes in occupancy, use, process, materials etc. etc., there is no reason to add a scope item to address actions to undertake when these changes are found. Nobody goes to "NFPA 25 Inspection Testing and Maintenance of Water Based Systems" to determine what is necessary when they make a change such as an occupancy or use change. The permitting process should take them to the appropriate codes and standards to address the appropriate design of the modified system including the design of the water based systems. Nobody is going to a maintenance document like NFPA 25 to determine design criteria.

SAIDI, J.: A simpler way of dealing with the Standards Council is to revise sections 4.1.5 and 4.1.6 to eliminate the non-ITM language, rather than expand the scope of this standard.

SHEPPARD, J.: Existing scope statement should be retained, and Sections 4.1.5 and 4.1.6 should be removed. From the beginning of this document, it was never about design, occupancy issues; only the physical inspection, testing and maintenance of systems. To have expanded this document is unnecessary.

UNDERWOOD, D.: The standard was never meant to require an engineering evaluation to find out how the building is being used now.

25-8 Log #252 **Final Action: Reject**

(1.1.3.1 and A.1.1.3.1)

Submitter: Joshua Elvove, U.S. General Services Administration

Recommendation: Revise 1.1.3.1 as follows:

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

A.1.1.3~~.1~~ The requirement to evaluate the adequacy of the design of the installed system as indicated in 4.1.5 and 4.1.6 is not typically a part of the periodic inspection, testing, and maintenance of a water based fire protection system ~~requirements of this standard~~. However, such evaluation can be added ~~is the responsibility of~~ if the property owner or designated representative clearly states this intent in writing ~~as indicated in 4.1.5 and 4.1.6~~.

Substantiation: So long Sections 4.1.5 and 4.1.6 remain in the standard, then changes in hazard and design are part of the scope of NFPA 25. As such, existing text needs to be deleted as its contradictory to scope. NFPA 25 is not a document where text should be crafted towards what the "inspector" does or doesn't do; it needs to be a document that ensures water based systems will perform; otherwise, there's no point for an owner to comply with the document. By deleting the text in 1.1.3.1, the conflict is removed. The existing annex note tied to 1.1.3.1 has been relocated to 1.1.3 and has been revised to indicate that verifying the adequacy of the design is not typically a part of ITM but it could be, provided this intent is clearly stated in writing. I recognize the typical "inspector" is not tasked or qualified to assess the adequacy of the design, but this should not be grounds for keeping such a task out of the scope of an "inspection" should an owner desire it. Note: if Sections 4.1.5 and 4.1.6 are removed, as suggested in another proposal, then this change is not necessary.

Committee Meeting Action: Reject

Committee Statement: The building owner can always require the design evaluation. The design evaluation is not part of the inspectors role but requires a skill level that differs from that of a typical inspector. This language is unique to NFPA 25 (as opposed to a design standard), however it is appropriate for an ITM standard.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 30 Negative: 3

Explanation of Negative:

ELVOVE, J.: Given the action taken by the committee in CP13 and the continued presence of language contained in 4.1.5 and 4.1.6, the standard DOES include actions to undertake to verify whether existing conditions have the potential to impact system design or performance. Therefore, the existing text in 1.1.3.1 should be deleted and the revisions that were proposed for the annex should be accepted. Current language mandates that the standard not require the "inspector" to verify the adequacy of the design, yet an "inspector" can do this if so desired. The document scope should not be defining roles and

responsibilities (i.e., assigning what an "inspector" should or should not do); to my knowledge, no other NFPA standard does this. Instead, the document should establish qualifications for doing any or all of the ITM activities, including evaluations associated with NFPA 25 and the scope of actual work should be left to the owner or owner's representative to decide.

LARRIMER, P.: NFPA 25 should not identify who is responsible for what. To write that the inspector is not required to do something that is outside the scope of the document doesn't make much sense to me. It should merely say that "This standard does not require the adequacy of the design to be verified." Nothing in this standard requires anyone to verify the adequacy of a design. Chapter four only requires the owner to address adequacy when there are changes, but the inspector who is doing the inspection is not required to identify the changes. So when would the owner or anyone else for that matter, use this document to determine adequacy of the design?

SAIDI, J.: As previously stated, NFPA 25 should be the standard for inspection, testing and maintenance of the water based systems without getting into the minefield of evaluating design and verifying consistency with occupancy.

25-9 Log #35 **Final Action: Accept**
(1.1.4)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise section 1.1.4 as follows:
1.1.4 Corrective action needed to ensure that a system operates in a satisfactory manner shall be in accordance with this standard unless this standard specifically refers to an ~~the~~ appropriate installation standard.
Substantiation: Now that NFPA 25 includes Summary of Component replacement Action Requirements tables in each chapter the user does not have to perform corrective actions per the installation standard unless specifically referred to in the tables. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
SHEPPARD, J.: Accept submitter's proposal; see comments on 25-42.
UNDERWOOD, D.: See comments on 25-42.

25-10 Log #274 **Final Action: Reject**
(1.1.5 and Chapter 16 (New))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise text to read as follows:
1.1.5 This standard shall not apply to sprinkler systems designed, installed, and maintained in accordance with NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes except for systems installed in Board and Care occupancies, which shall only be required to meet Chapter 16.
Chapter 16 Board and Care Facilities with NFPA 13D Systems
16.1* Board and Care Facilities with NFPA 13D system protection shall only be required to meet the requirements of this chapter and the applicable portions of Chapter 4.
16.2 Inspection Requirements
16.2.1 Control valves shall be inspected monthly 13.3.2.
16.2.2 Gages shall be inspected monthly to verify that they are in good condition and that normal pressure is being maintained.
16.2.3 Alarm devices shall be inspected quarterly to verify that they are free from physical damage.
16.2.4 Sprinklers visible from floor level shall be inspected annually in accordance with 5.2.1.
16.2.5 Pipe visible from floor level shall be inspected annually in accordance with 5.2.2.
16.2.6 Pipe hangers visible from floor level shall be inspected annually in accordance with 5.2.3.
16.2.7 Dry-pipe systems that extend into unheated portions of the building shall be inspected in accordance with 13.4.4.
16.3 Testing Requirements
16.3.1 Alarm devices shall be tested semiannually in accordance with 5.3.3.
16.3.2 A representative sample of fast response sprinklers shall be tested once the sprinklers in the system are 20 years old in accordance with 5.3.1.1.1.3. If any sprinkler in the sample fails the test, all of the sprinklers represented by that sample shall be replaced. If the sprinklers pass the test, the test shall be repeated every 10 years thereafter.
16.3.3 A representative sample of dry-type sprinklers shall be tested once the sprinklers in the system are 10 years old in accordance with 5.3.1.1.1.6. If any sprinkler in the sample fails the test, all of the sprinklers represented by that sample shall be replaced. If the sprinklers pass the test, the test shall be repeated every 10 years thereafter.
16.3.4 Antifreeze solutions shall be tested in accordance with 5.3.4.
16.3.5 Dry-pipe systems that extend into the unheated portions of the building shall be tested in accordance with 13.4.4.
16.4 Maintenance Requirements
16.4.1 Control valves shall be operated through their full range and returned to normal annually.
16.4.2* Operating stems of OS&Y valves shall be lubricated annually.
16.4.3 Dry-pipe systems that extend into the unheated portions of the building shall be maintained in accordance with 13.4.4.
A.16.1 The intent of NFPA 25 is not to require all of the rules of all of the chapters of NFPA 25 to be used in the small NFPA 13D systems installed in Board and Care Facilities. Instead, just a few of the inspection, testing, and maintenance rules need to be followed. Where other sections of NFPA 25 are referenced, the intent is to use these sections for procedural information and pass/fail criteria, not to have the frequencies or other requirements of these sections pulled into this chapter.
The presence of this chapter in no way implies that NFPA 13D systems in single-family dwellings or two-family dwellings need to be inspected, tested or maintained in accordance with NFPA 25. Instead, this chapter creates some special inspection, testing and maintenance requirements for situations where Board and Care Facilities have used NFPA 13D because these occupancies need more formal procedures for maintaining their systems. This chapter only applies to Board and Care Facilities.
A.16.4.2 It is a good idea to lubricate the valve in accordance with this section first, then close the valve all the way and open it again as required by section 16.4.1. This way, the lubricant gets distributed with a minimum amount of time and effort.
Substantiation: It has always been the intent of NFPA 25 to exempt fire sprinkler systems in one and two family homes from the requirements of the standard. However, several years ago, the NFPA Committee on Board and Care Occupancies beefed up the rules of NFPA 13D and allowed the installation of such systems into small Board and Care Facilities (in NFPA 101 and NFPA 5000). When they did this, they recognized that such systems would need to be maintained in some standardized fashion.

The Committee on Board and Care Occupancies created Section 32.2.3.5.8 in the Life Safety Code (NFPA 101) with inspection, testing and maintenance requirements for these systems in Board and Care Facilities. This section of NFPA 101 contains its own frequencies for activities that do not necessarily agree with NFPA 25. Unfortunately, most members of the fire sprinkler industry do not read NFPA 101 and are not familiar with its contents.

The rules for inspecting, testing and maintaining fire sprinkler systems need to be in NFPA 25. Since these rules exist within the NFPA system, they should be moved to NFPA 25 from NFPA 101.
Committee Meeting Action: Reject
Committee Statement: This proposal includes occupancy specific language which is not consistent with the structure of NFPA 25. The application of ITM tasks for 13D systems is better handled in the "codes" as opposed to the ITM standard. The technical committee encourages the submitter to submit a request to the appropriate building, life safety or occupancy code to reference certain portions or all of NFPA 25 for these occupancies.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
OSBURN, M.: I agree with the proponent that the inspection, testing and maintenance guidelines for NFPA 13D Systems installed in a Board and Care Facility should be located in NFPA 25.

RAY, R.: This proposal should have been accepted as submitted. Though it is clear that NFPA 25 does not apply to NFPA 13D systems installed in (typical) 1 and 2 family dwellings, the nature of the occupants of Board & Care facilities may render them incapable of reacting to a fire in the same way that the occupants of a typical 1 and 2 family home would.

25-11 Log #326 **Final Action: Reject**
(1.2.1 and A.1.2.1)

Submitter: Peter A. Larrimer, US Department of Veterans Affairs
Recommendation: Modify 1.2.1 and the annex as follows:
1.2* Purpose.
1.2.1 The purpose of this document is to provide minimum requirements ~~that ensure a reasonable degree of protection for life and property from fire through minimum~~ for inspection, testing, and maintenance ~~methods~~ for water-based fire protection systems.
1.2.2 In those cases where it is determined that an existing situation involves a distinct hazard to life or property, the authority having jurisdiction shall be permitted to require inspection, testing, and maintenance methods in excess of those required by the standard.
A.1.2 ~~History has shown that the performance r~~ Reliability of a water-based fire protection system under fire-related conditions increases where a comprehensive inspection, testing, and maintenance program is in place. ~~procedures are enforced. Diligence during an inspection is important. The inspection, testing, and maintenance of some items in the standard might not be practical or possible, depending on existing conditions. The inspector should use good judgment when making inspections.~~ However, this standard does not address some common failure modes that are known for water based systems nor are the requirements written to address the performance of a system. This standard does not require the inspector to notify the owner of any design issues that might affect the performance of the system.
Substantiation: Below is data from NFPA (John Hall Jr. Report of Feb 2010) on system failures that support the changes to the "Purpose" of the document.

Since the ITM requirements of NFPA 25 do not address some of the reasons why systems did not operate and why some systems were ineffective after operation, the annex note was added to clarify that the system owner should not expect the standard to accomplish something that is not a goal of the standard. In addition, based on the ITM requirements in NFPA 25, the degree of protection for life and property from fire cannot be established one way or the other based upon the requirements of NFPA 25 since NFPA 25 doesn't address performance. A visit from a contractor to a property where the ITM has been accomplished in compliance with the requirements of NFPA 25 could leave the owner with a rack storage system protected by a light hazard sprinkler system.
Based on NFPA data, 93% operated, 7 % did not operate. Reasons for when sprinklers fail to operate
(a) system shut off before fire (53%),
(b) Inappropriate system for fire(20%)
(c) Lack of maintenance (15%)
(d) Manual intervention defeated system (9%)
(e) Damage component (2%)
Based on NFPA data, 97% effective, 3% were ineffective. Reasons for when sprinklers are ineffective:
a) Water did not reach fire (43%)
b) Not enough water released (31%)
c) Inappropriate system for fire (12%)
d) Manual intervention defeated system (5%)
e) Damaged component (4%)
f) Lack of maintenance. (4%)
Committee Meeting Action: Reject
Committee Statement: The standard provides a minimum set of ITM requirements which, when met, should provide a reasonable degree of protection. Also see Section 1.1. Other failures modes caused by changes that might occur are intended to be addressed in section 4.1.5 and 4.1.6.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 28 Negative: 5
Explanation of Negative:
DRYSDALE, M.: This standard provides minimum inspection, test and maintenance requirements.

ELVOVE, J.: This proposal should have been accepted for a number of reasons. First, the scope and purpose of the document IS to establish minimum requirements; that's how other NFPA codes and standards are written. Second, "a reasonable degree…" is unenforceable language. Third, no where in the standard is there language outside of this section that addresses "life safety" (pay attention to paragraph 4.1.6.2 which used to address life safety, but text related to life safety was deleted last cycle; as such, 4.1.6.2 only addresses protection of the building and contents). Therefore, the revised text proposed for 1.2.1 should incorporated as the new purpose statement. Regarding changes proposed to the annex (A.1.2), first, enforcement has nothing to do with reliability. Due diligence by building owners to maintain their systems, regardless of any mandate is sufficient means to ensure their systems will perform as designed and installed. Therefore, the first sentence should be revised as proposed. Second, annex material for the purpose statement now needs to align itself with the revised scope and thus include language related to system performance. Hence, the committee statement making reference to sections 4.1.5 and 4.1.6 is no longer appropriate. Though that means the new text proposing "nor are the requirements written to address the performance of a system" should not be incorporated into the annex, existing language within the annex that only addresses the "inspector" making good judgments should be stricken, since similar judgments should also be made to those who perform evaluations in accordance with 4.1.5 and 4.1.6. Finally, the proponent adds language that most committee members crave, absolving the "inspector" from having to note any design issues. One would think such language would be welcome.

LARRIMER, P.: ITM per NFPA 25 does not ensure a reasonable degree of protection as it does not address adequacy of the design. Section 4.1.5 and 4.1.6 are not part of the inspection process and does not come into play unless there are changes that are identified, yet NFPA 25 does not have criteria where anyone would identify them.
The change should be accepted since some people actually think that after an inspection per NFPA 25, they are getting assurance that their system will protect a hazard when that assurance is not part of the scope of this document. How can the committee state that a "reasonable degree of protection" should be provided when a visit by a contractor to a property where ITM has be accomplished in compliance with the requirements of NFPA 25 could leave the owner with a rack storage system protected by a light hazard sprinkler system.

SAIDI, J.: The proposal had merit and should have accepted by the committee. Basically the current language leaves the owner with unrealistic expectations from this standard based on the current scope, format, qualifications, etc.

SHEPPARD, J.: Agree with submitter's substantiation.

25-12 Log #108 **Final Action: Reject**
(1.2.2)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise text to read as follows:
1.2.2 In those cases where it is determined ~~that an existing condition involves a distinct hazard to life or property,~~ that the existing situation presents an unacceptable degree of risk, the authority having jurisdiction shall be permitted to require inspection, testing, and maintenance methods in excess of those required by the standard.
Substantiation: The term "distinct hazard" is vague. The proposed revision using the term "unacceptable degree of risk" mirrors that found in NFPA 13 relating to retroactivity and better describes the condition(s) in which ITM methods in excess of the standard can be incorporated.
Committee Meeting Action: Reject
Committee Statement: There is no benefit to revising this language. Using the term "risk" is a more broad application of the intent of the standard. The term unacceptable degree of risk will vary greatly depending on the user.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
LEAVITT, R.: The existing language "distinct hazard to life or property" is unclear. I believe the submitter is correct in aligning the language with that used in other standards such as NFPA 13 regarding retroactivity.

25-13 Log #2 **Final Action: Reject**
(Chapter 3 Definitions)

Note: This proposal appeared as Comment 25-8 (Log #1) which was held from the Annual 2010 ROC on Proposal N/A.
Submitter: Daniel Hartel, Liberty Fire Protection Systems, Inc.
Recommendation: Add new text as follows:
Daily – Occurring Every Day
Weekly – Occurring Every Week
Monthly – Occurring Every Month
Quarterly – Occurring Every 3 Months
Biannual – Occurring Every 6 Months
Annual – Occurring Every 12 Months
Semi-annual – Occurring Every 24 Months
3 Years – Occurring Every 36 Months
5 Years – Occurring Every 60 Months
Etc.
Substantiation: There is confusion between Biannual and Semi-annual.
Merriam-Webster Dictionary describes Biannual as occurring twice a year; and describes Semiannual as occurring 1/2 in the first year and 1/2 in the second year. Since you can't really do 1/2 of an inspection or a test, an argument can be made that this means that the inspection or test can be done every 2 years.
Committee Meeting Action: Reject
Committee Statement: The terms are adequately defined in the dictionary. The line item for "semi-annual" is not correct. The intent of semi-annual is to conduct the task twice per year.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-14 Log #112 **Final Action: Accept**
(3.3.x Automatic Transfer Switch (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.3.X. Automatic Transfer Switch. Self-acting equipment for transferring the connected load from one power source to another power source.
Substantiation: 8.3.3.4 has testing requirements for automatic transfer switches used with fire pumps. The standard should have a definition.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: I understand this will noted as Extract text.

25-15 Log #114 **Final Action: Accept**
(3.3.x Hydrostatic Test (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.3.XX. Hydrostatic Test. A test of a closed piping system and its attached appurtenances consisting of subjecting the piping to an increased internal pressure for a specified period of duration to verify system integrity and leak rates.
Renumber remaining sections as required.
Substantiation: NFPA 25 contains requirements for performing hydrostatic test(s). A definition for hydrostatic test should be in the standard.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: See my Comment on Affirmative on Proposal 25-14 (Log #112).

25-16 Log #33 **Final Action: Reject**
(3.3.x Recommendation and A.3.3.x (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add new text to read as follows:
3.3.XX Recommendation. A finding or observation identified during normal inspection, testing or maintenance activities that is brought to attention of the owner or designated representative that is not based on the requirements of this standard.
A.3.3.XX An example of a recommendation is the appearance that sprinklers in an area may be over spaced due to changes in the building. Personnel performing normal inspection, testing, or maintenance tasks may observe a condition of the system that is not a deficiency or impairment as defined in this standard, but should be brought to the attention of the owner or designated representative. The result of a recommendation may be an evaluation of the system as described in Annex F.
Substantiation: This definition is need to differentiate between what's required to be recorded in an inspection report as a deficiency or impairment and something that the inspector thinks should be investigated. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: This language was written as a companion proposal to 25-301 (Log #186) which was rejected. There is no need for this definition as this concept was rejected.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-17 Log #113 **Final Action: Accept**
(3.3.x Waterflor Alarm Device (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.3.XX. Waterflow Alarm Device. An attachment to the sprinkler system that detects a predetermined water flow and is connected to a fire alarm system to initiate an alarm condition or is used to mechanically or electrically initiate a fire pump or local audible or visual alarm.
Substantiation: NFPA 25 has requirements for the inspection and testing of waterflow alarm devices. A definition should be included in the standard.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: See my Comment on Affirmative on Proposal 25-14 (Log #112).
ELVOVE, J.: The committee substantiation should recognize the incorrect reference to NFPA 13. It should be NFPA 13, 2010, 3.5.13.

25-18 Log #158 **Final Action: Reject**
(3.3.1 Alarm Receiving Facility, 3.3.x Supervising Station (New), 5.1.5, 6.1.8, 8.1.11, 9.1.5, 10.3.2.1, 11.1.7, and 12.x (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise **5.1.5; 6.1.8; 7.1.6; 8.1.11; 9.1.5; 10.3.2.1; and 11.1.7** to read:
Notification to ~~Supervisory Service~~ Supervising Station. To avoid false alarms where a ~~supervisory service~~ supervising station is ~~provided~~ utilized, the ~~alarm receiving facility~~ supervising station shall be notified by the property owner or designated representative as follows: (no changes to remaining text)
Delete all of **3.3.1 Alarm Receiving Facility.**
Add new section:
3.X.X Supervising Station. A facility that receives signals from protected premises fire alarm systems and at which personnel are in attendance at all times to respond to these signals.
Add new section:
12.X.X Notification to Supervising Station. To avoid false alarms where a supervising station is utilized. the supervising station shall be notified by the property owner or designated representative as follows:
(1) Before conducting any test or procedures that could result in the activation of an alarm
(2) After such tests of procedures are concluded
Substantiation: There is no definition for "supervisory service" that is applicable to the way it is used in the standard. "Supervising station" is the term used by NFPA 72. The definition for "Alarm Receiving Facility" is unique to NFPA 25 is not needed but a definition for "Supervising Station" is needed if the revision is approved. Chapter 12 "Water Mist Systems" should have a "notification" section.
Committee Meeting Action: Reject
Committee Statement: The term alarm receiving facility was retained throughout the standard, therefore removing it here would be incongruous with other technical committee actions. The proposed language for Chapter 12 was discussed as part of 25-5 (Log #CP11) and the technical committee decided that the reference in each chapter was not necessary as it was sufficiently addressed in Chapter 4.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-19 Log #253 **Final Action: Accept**
(3.3.4 Deficiency and A.3.3.4)

Submitter: Joshua Elvove, U.S. General Services Administration
Recommendation: Revise 3.3.4 as follows:
3.3.4* Deficiency. For the purposes of inspection, testing, and maintenance of water-based fire protection systems, a condition ~~in~~ which will or has the potential to adversely impact the performance of a system or portion thereof ~~is damaged, inoperable, or in need of service,~~ but does not rise to the level of an impairment.
~~3.3.4.1 Critical Deficiency. A deficiency that, if not corrected, can have an effect on the performance of the fire protection system.~~
~~3.3.4.2 Noncritical Deficiency. A deficiency that does not have an effect on the performance of the fire protection system, but correction is needed for the proper inspection, testing, and maintenance of the system(s).~~
A.3.3.4 Deficiency. Depending on the nature and significance of the deficiency it can result in a system impairment. Critical deficiencies will adversely impact performance but without the need for the implementing impairment procedures. Noncritical deficiencies have the potential to impact performance.
Substantiation: The revised language removes limiting and potentially conflicting language regarding an inoperable system which could also be considered an impairment (as noted by Bill Sheppard in his negative ballot comment on ROC 25-12), and substitutes broader language that can be applied to any condition noted that has the potential to negatively impact on the performance of a water based fire protection system. The sub-classifications have been revised and relocated to the annex because the terms do not appear in the body of the standard, nor are they needed in the body of the standard, whether or not there's a table distinguishing between critical and noncritical deficiencies.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 28 Negative: 5
Explanation of Negative:
FLEMING, R.: The definitions of "critical deficiency" and "noncritical deficiency" should be retained within the standard. The distinction between these states is an important and can be used by the AHJ to establish different allowed times for correction. These terms have already been codified in places like New York City, where they result in systems being "orange tagged" vs. "yellow tagged." The fire department, if called upon to respond to a system, can recognize that a yellow tagged system can be supported in the normal manner, while the orange tagged systems may require special attention, such as the need to take special measures to avoid water hammer effects.
LEAVITT, R.: The current language is needed for use in jurisdictions where system tagging or rating is in effect. Deficiencies are NOT all created equal and the current definitions are needed. In addition, not all the inspections apply to components of a system such as signs and have no "adverse" impact on the operation of a system.
MYERS, T.: It is obvious from committee discussion and working with state of Florida tagging fire sprinkler systems law that there needs to be better understanding of how to characterize deficiencies. To eliminate the distiction between critical and non-critical will only increase confusion.
RAY, R.: This proposal should have been rejected. The distinction between critical and noncritical deficiencies is essential in aiding AHJ's in making determinations on the urgency of needed actions & the time frames for repairs to address the deficiency at hand. This would help building owners when an over zealous AHJ wants to "red tag" a building because of a missing escutcheon (for example).
VICTOR, T.: The terms "critical deficiency" and "non-critical deficiency" introduced in the 2011 edition are relevant and necessary as the document moves toward differentiating between different types of findings from an inspection or test. Many states have adopted tagging requirements and are establishing prescribed periods of times to take the necessary corrective action when a deficiency or impairment is found. To only have one broad term "deficiency" doesn't allow the user to differentiate between a missing sign and a non-functioning water flow switch. Annex E is in the document and uses both of these terms in the text as well as in the table. Per NFPA guidelines a term does not need to be used in the body of a standard to be included as a definition. A task group has been established to further study the classification of findings in Annex E and to clarify them where needed. Without having these terms defined and able to be used in this effort will lead to more confusion about the severity of deficiencies.

25-20 Log #311 **Final Action: Reject**
(3.3.4.2 Noncritical Deficiency)

Submitter: Ken Bogue, SimplexGrinnell/Rep Tyco/SimplexGrinnell
Recommendation: Change the term Noncritical Deficiency to Minor Deficiency in Chapter 3 and anywhere it is used throughout the document.
3.3.4.2 ~~Noncritical~~ Minor Deficiency
Substantiation: The meaning of Noncritical doesn't meet the intent of the definition. "Minor" means lesser in seriousness or danger. Minor Deficiency better states the meaning intended of not in a state of crisis or emergency.

This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The term and concept of a "Non-critical deficiency" was deleted as part of 25-19 (Log #253) and therefore there is no need for the definition in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-21 Log #57 **Final Action: Accept in Principle**
(3.3.11 Foam Discharge Device and A.3.3.11 (New))

Submitter: Marcelo M. Hirschler, GBH International
Recommendation: Revise text to read as follows:
3.3.11 Foam Discharge Device. Any device that, when fed with a foam-water solution, produces foam. ~~These devices are permitted to be non-air-aspirating (e.g., sprinklers, water nozzles) or air-aspirating (e.g., foam-water sprinklers, directional foam water nozzles, foam nozzles). All discharge devices have a special pat~~tern of distribution peculiar to the particular device.
A.3.3.11 These devices are permitted to be non-air-aspirating (e.g., sprinklers, water nozzles) or air-aspirating (e.g., foam-water sprinklers, directional foam water nozzles, foam nozzles). All discharge devices have a special pattern of distribution peculiar to the particular device.
Substantiation: The NFPA Manual of Style requires definitions to be in single sentences. The added sentences should not be part of the definition (and in this case they are simply added explanations) but should be in the body of the document or in an annex note, as recommended in this proposal.
The added information might be helpful in chapter 11.
Committee Meeting Action: Accept in Principle
Extract definition from NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems.
Committee Statement: The Technical Committee action meets the intent of the submitter and is consistent with the MOS.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-22 Log #36 **Final Action: Accept in Principle**
(3.3.17.1 Emergency Impairment)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise 3.3.17.1 as follows:
3.3.17.1 ***Emergency Impairment.*** A condition where a water-based fire protection system or portion thereof is out of order due to an unexpected occurrence, such as a ruptured pipe, an operated sprinkler, or an interruption of the water supply to the system, or the condition was found while performing inspection testing or maintenance activities.
Substantiation: Most impairments are discovered while performing inspection, testing, and/or maintenance on the system, and yet this standard doesn't clearly state that this condition is defined as an emergency impairment once it's discovered. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
3.3.17.1 ***Emergency Impairment.*** A condition where a water-based fire protection system or portion thereof is out of order due to an unplanned~~expected~~ occurrence or the impairment is found while performing inspection testing or maintenance activities.
A.3.3.17.1 Examples of emergency impairments may include a ruptured pipe, an operated sprinkler, or an interruption of the water supply to the system
Committee Statement: Definition should not contain examples. The revised definition addresses impairments noted during the normal ITM process. This language must be moved to the annex.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 29 Negative: 4
Explanation of Negative:
ELVOVE, J.: The existing definition already addresses a condition that might be noted while performing ITM activities. This change could potentially lead to unintended consequences and as thus such, should not be accepted.
LARRIMER, P.: Just because an impairment is found during routine ITM activities doesn't make it an emergency impairment as is now the case the way this is written. The added language "or the impairment is found while performing inspection testing or maintenance activities" should be deleted.
SHEPPARD, J.: Existing text is sufficient.
UNDERWOOD, D.: Existing text is correct.

25-23 Log #58 **Final Action: Accept**
(3.3.19 Inspection, Testing, and Maintenance Service and A.3.3.19 (New))

Submitter: Marcelo M. Hirschler, GBH International
Recommendation: Revise text to read as follows:
3.3.19 Inspection, Testing, and Maintenance Service. A service program provided by a qualified contractor or qualified property owner's representative in which all components unique to the property's systems are inspected and tested at the required times and necessary maintenance is provided. ~~This program includes logging and retention of relevant records.~~
A.3.3.19 This program includes logging and retention of relevant records.
Substantiation: The NFPA Manual of Style requires definitions to be in single sentences. The added sentences should not be part of the definition (and in this case they are simply added explanations) but should be in the body of the document or in an annex note, as recommended in this proposal.
The added information might be helpful in chapter 14.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-24 Log #307 **Final Action: Accept in Principle**
(3.3.29 Reduced-Pressure Principle Backflow Prevention Assembly (RPBA))

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
3.3.29 Reduced-Pressure Principle Backflow Prevention Assembly (RPBA). Two independently acting check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and ~~below~~ upstream of the first check valve. These units are located between two tightly closed resilient-seated shutoff valves, as an assembly, and are equipped with properly located resilient-seated test cocks.
Substantiation: The use of the term "below" infers that the device can only be a vertical assembly. A more appropriate term of "upstream" would apply to any orientation.
Committee Meeting Action: Accept in Principle
Revise definition to read as follows:
3.3.29 Reduced-Pressure Principle Backflow Prevention Assembly (RPBA). Two independently acting check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves, ~~and below upstream of the first check valve.~~
along with two resilient-seated shutoff valves, all as an assembly, and equipped with properly located test cocks.
Committee Statement: The term "resilient seated" is not appropriate for the test cocks as this is not part of the listing process for this device. The proposed revisions to address "upstream" does not provide any additional clarification. The modifications are in line with the submittal and create a single sentence as requested by the MOS.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
ELVOVE, J.: By combining two sentences, the new definition is awkward and possibly ambiguous. Suggest this be revised during ROC

25-25 Log #59 **Final Action: Accept in Principle**
(3.3.29 Reduced-Pressure Principle Backflow Prevention Assembly (RPBA) and A.3.3.29 (New))

Submitter: Marcelo M. Hirschler, GBH International
Recommendation: Revise text to read as follows:
3.3.29 Reduced-Pressure Principle Backflow Prevention Assembly (RPBA). Two independently acting check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below the first check valve. ~~These units are located between two tightly closed resilient-seated shutoff valves, as an assembly, and are equipped with properly located resilient-seated test cocks.~~
A.3.3.29 These units are located between two tightly closed resilient-seated shutoff valves, as an assembly, and are equipped with properly located resilient-seated test cocks.
Substantiation: The NFPA Manual of Style requires definitions to be in single sentences. The added sentences should not be part of the definition (and in this case they are simply added explanations) but should be in the body of the document or in an annex note, as recommended in this proposal.
Committee Meeting Action: Accept in Principle
Committee Statement: The submitter was directing the Technical Committee to create a single sentence definition, which was accomplished with the action on Proposal 25-24 (Log #307).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-26 Log #110 **Final Action: Accept in Part**
(3.3.30.x Concealed Sprinkler, Flush Sprinkler, Sidewall Sprinkler, Institutional Sprinkler, Intermediate Level Sprinkler/Rack Storage Sprinkler, and Pilot Line Detector (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add the following sprinkler definitions:
3.3.30.XX. Concealed Sprinkler. A recessed sprinkler with a cover plate.
3.3.30.XX. Flush Sprinkler. A sprinkler in which all or part of the body, including the shank thread, is mounted about the lower plane of the ceiling.
3.3.30.XX. Sidewall Sprinkler. A sprinkler having special deflectors that are designed to discharge most of the water away from the nearby wall in a pattern resembling one-quarter of a sphere, with a small portion of the discharge directed at the wall behind the sprinkler.

3.3.30.XX. Institutional Sprinkler. A sprinkler specially designed for resistance to load-bearing purposes and with components not readily converted for use as weapons.
3.3.30.XX. Intermediate Level Sprinkler/Rack Storage Sprinkler. A sprinkler equipped with integral shields to protect its operating elements from the discharge of sprinklers installed at higher elevations.
3.3.30.XX. Pilot Line Detector. A standard spray sprinkler or thermostatic fixed-temperature release device used as a detector to pneumatically or hydraulically release the main valve, controlling the flow of water into a fire protection system.
Substantiation: NFPA 25 has a number of sprinkler definitions. These should be added so that the list is complete.
Committee Meeting Action: Accept in Part
Accept extracted definitions from NFPA 13, Standard for the Installation of Sprinkler Systems.
3.3.30.XX. Concealed Sprinkler.
3.3.30.XX. Flush Sprinkler.
3.3.30.XX. Sidewall Sprinkler.
Do not accept the following definitions
3.3.30.XX. Institutional Sprinkler.
3.3.30.XX. Intermediate Level Sprinkler/Rack Storage Sprinkler.
3.3.30.XX. Pilot Line Detector.
Committee Statement: The accepted definitions are included as part of Proposal 25-27 (Log #37). The definitions that were not accepted do not appear in the standard and should not be defined.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-27 Log #37 **Final Action: Accept**
(3.3.30.x Installation Orientation (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add text and new definitions and renumber existing definitions in Chapter 3 as follows:
(new) **3.3.30.1 Installation Orientation.** The following sprinklers are defined according to orientation.
(new) **3.3.30.1.1** ***Concealed Sprinkler.*** A recessed sprinkler with cover plate.
(new) **3. 3.30.1.2** ***Flush Sprinkler.*** A sprinkler in which all or part of the body, including the shank thread, is mounted above the lower plane of the ceiling.
(existing 3.3.30.10) **3. 3.30.1.3** ***Pendent Sprinkler.*** A sprinkler designed to be installed in such a way that the water stream is directed downward against the deflector.
(existing 3.3.30.14) **3. 3.30.1.4** ***Recessed Sprinkler.*** A sprinkler in which all or part of the body, other than the shank thread, is mounted within a recessed housing.
(new) **3. 3.30.1.5** ***Sidewall Sprinkler.*** A sprinkler having special deflectors that are designed to discharge most of the water away from the nearby wall in a pattern resembling one quarter of a sphere, with a small portion of the discharge directed at the wall behind the sprinkler.
(existing 3.3.30.19) **3. 3.30.1.6** ***Upright Sprinkler.*** A sprinkler designed to be installed in such a way that the water spray is directed upwards against the deflector.
Renumber the rest of section 3.3.30 accordingly.
Substantiation: These definitions are needed to understand the requirement to inspect for proper orientation in the Chapter 5. This entire section is extracted from NFPA 13 2010 section 3.6.2. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-28 Log #14 **Final Action: Reject**
(3.3.30.1 Automatic Sprinkler, 3.3.30.8 Open Sprinkler, and A.3.3.30.x (New))

Submitter: Milosh T. Puchovsky, Worcester Polytechnic Institute
Recommendation: Add text to read as follows:
3.3.30.1 **Automatic Sprinkler.** A sprinkler that operates automatically when its heat-activated element is heated to its thermal rating or above.
3.3.30.XX*Sprinkler. A listed fire protection device through which water or water combined with an additive is discharged in the form of droplets of varying sizes in a predetermined pattern so as to cover and reach a specified floor area with the intent of suppressing or controlling a fire located below, and which is evaluated for such performance through standardized test methods. Water droplets discharged are of sufficient size to penetrate the fire plume, cool the combustion zone, pre-wet adjacent combustibles and surfaces, and reduce ceiling temperatures.
A.3.3.30.XX Water droplets produced by a sprinkler typically range in size from 200 microns to 1800 microns. See "Measurement of Droplet Size in Sprinkler Sprays" by J.R. Lawson, W.D. Walton, and D.D. Evans, NIST, February 1988 (NBSIR 88-3715). While sprinkler devices are designed and manufactured to discharge a certain amount of water in a certain pattern over a predetermined floor area, individual design and installation standards address the use of sprinklers in specific fire protection systems for specific applications. For example, NFPA 15, *Standard on Water Spray Systems,* permits the use of sprinklers as a means of exposure protection of vertical surfaces such as those on transformers and storage tanks.
~~**3.3.30.8** ***Open Sprinkler.*** A sprinkler that does not have actuatorsor heat-responsive elements. [**13,** 2010]~~
3.3.30.8 **Open Sprinkler.** A sprinkler that does not have a cap or heat-activated element to control water discharge.
Substantiation: NFPA 13 does not include a definition for the term sprinkler. The proposed language describes how a sprinkler is intended to perform and function, and aims to more clearly differentiate a sprinkler from other types of devices that can be used as part of a water-based fire protection system.
The proposed language in this comment was created by an intercommittee task group consisting of members of the RSS, SSI and NFPA 25 TC's. This task group was created at the request of the TCC. While the majority of the task group members agreed with the proposed language, there was a minority position that preferred not to include annex text in regard to NFPA 15.
Committee Meeting Action: Reject
Committee Statement: This proposal was submitted to the NFPA 13 Technical Committees to differentiate sprinklers from water mist nozzles. This concept was rejected by the NFPA 13 Technical Committees and is therefore not necessary for correlation in this standard as was the original intent of the task group.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-29 Log #109 **Final Action: Accept**
(3.3.31.5 Semiautomatic Dry Standpipe System (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.3.31.5 Semiautomatic Dry Standpipe System. A standpipe system permanently attached to a water supply that is capable of supplying the system demand at all times arranged through the use of a device such as a deluge valve and that requires activation of a remote control device to provide water at hose connections.
Substantiation: Testing of semi-automatic standpipe systems are referred to in 6.2.3.3. A definition should be included in the standard.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-30 Log #111 **Final Action: Reject**
(3.3.34.1 Supervisory Alarm Device (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.3.34.1 Supervisory Alarm Device. A device that is arranged to supervise the operative status of water-based suppression systems and is connected to an alarm system to electrically initiate a trouble or alarm condition.
Substantiation: Supervisory alarm devices are referred to in 5.2.5. A definition should be included in the standard.
Committee Meeting Action: Reject
Committee Statement: The term "Supervisory Alarm Device" is no longer used in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-31 Log #147 **Final Action: Accept in Principle**
(3.3.35.1 Performance-Based Testing (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.3.35.1 Performance-Based Testing. Testing methods and frequencies that have been demonstrated to deliver equivalent or superior levels of performance through quantitative performance-based analysis.
Substantiation: The standard allows an alternative for compliance using performance-based testing but does not have a definition for the term.
Committee Meeting Action: Accept in Principle
Revise definition to read as follows:
3.3.35.1 Performance-Based Program ~~Testing~~. ~~Testing~~ Methods and frequencies that have been demonstrated to deliver equivalent or superior levels of performance through quantitative performance-based analysis.
Committee Statement: The standard refers to a "performance based program" as opposed to testing. This correlates the definition as the term is used in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-32 Log #115 **Final Action: Accept**
(3.5.6 Pressure Relief Valve (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.5.6 Pressure Relief Valve. A device that allows the diversion of liquid to limit excess pressure in a system.

Substantiation: Relief valves are referred to in 13.5; 13.5.7.2; 13.5.7.2.1; and 13.5.7.2.2. A definition should be included in the standard.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: See my Comment on Affirmative on Proposal 25-14 (Log #112).

25-33 Log #116 **Final Action: Accept**
(3.5.6.1 Circulation Relief Valve (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.5.6.1. Circulation Relief Valve. A valve used to cool a pump by discharging a small quantity of water, this valve is separate and independent of the main relief valve.
Substantiation: Circulation relief valves are referred to in 13.5.7.1 and 13.5.7.1.2. A definition should be included in the standard.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: See my Comment on Affirmative on Proposal 25-14 (Log #112).

25-34 Log #70 **Final Action: Accept**
(3.6 Water Mist System (New))

Submitter: Zachary L. Magnone, Tyco Fire Protection Products
Recommendation: Add new definitions in Chapter 3 and Annex material as follows:
3.6. XX **Water Mist System.** A distribution system connected to a water supply or water and atomizing media supplies that is equipped with one or more nozzles capable of delivering water mist intended to control, suppress, or extinguish fires and that has been demonstrated to meet the performance requirements of its listing and the applicable standard. [**750**, 2010]
3.6.XX.1 **Deluge Water Mist System.** A water mist system using open nozzles attached to a piping system that is connected to a water supply through a valve that is opened by means of a detection system installed in the same area as the mist nozzles. When the valve opens, water flows into the piping system and discharges through all nozzles attached to the system. [**750**, 2010]
3.6.XX.2 **Dry Pipe Water Mist System.** A water mist system using automatic nozzles attached to a piping system containing air, nitrogen, or inert gas under pressure, the release of which (as from an opening of an automatic nozzle) allows the water pressure to open a dry pipe valve. The water then flows into the piping system and out through any open nozzles. [**750**, 2010]
3.6.XX.3 **Local-Application Water Mist System.** A water mist system arranged to discharge directly on an object or hazard in an enclosed, unenclosed, or open outdoor condition. [**750**, 2010]
3.6.XX.4 **Preaction Water Mist System.** A water mist system using automatic nozzles attached to a piping system that contains air that might or might not be under pressure, with a supplemental detection system installed in the same areas as the mist nozzles. The actuation of the detection system opens a valve that allows water to flow into the piping system and discharges through all opened nozzles in the system. [**750**, 2010]
3.6.XX.5 **Wet Pipe Water Mist System.** A water mist system using automatic nozzles attached to a piping system containing water and connected to a water supply so that water discharges immediately from nozzles operated by the heat from a fire. [**750**, 2010]
Substantiation: These definitions are needed to differentiate water mist systems from other types of water based fire suppression systems which are subject to the inspection, testing, and maintenance procedures outlined in this standard. It is necessary to include these definitions as water mist systems are utilized in lieu of traditional water spray and sprinkler systems in common applications. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Committee Statement: This will be reevaluated during the ROC meeting as some of the proposed terms are not used. The chapter is being rewritten as accepted by Proposal 25-234 (Log #CP10). A task group will be further revising this chapter prior to the ROC meeting.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
ELVOVE, J.: Concur with Mr. Leavitt. Can't introduce the four sub-definitions since they are used in the standard.
LEAVITT, R.: The names of the various types of water-mist systems are not included in the standard. The committee has stated on other rejections regarding definitions that if the term(s) is not used in the standard, it is not appropriate to include a definition.

25-35 Log #117 **Final Action: Accept**
(3.6.4.x Marine System (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.6.4.X. Marine System. A sprinkler system installed on a ship, boat, or other floating structure that takes its supply from the water on which the vessel floats.
Substantiation: NFPA 13 mandates in Chapter 25 that Marine Systems are maintained in accordance with NFPA 25 and NFPA 25 5.4.4 has requirements for certain maintenance of Marine Systems. The standard should have a definition for this type of system.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: See my Comment on Affirmative on Proposal 25-14 (Log #112).

25-36 Log #263 **Final Action: Accept**
(3.6.4 Sprinkler System)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise the definition of a Sprinkler System to extract the definition from NFPA 13.
Substantiation: As of the date for submittal of proposals, the definition of Sprinkler System has not finished the revision process in NFPA 13. However this definition ends up, the definition should be extracted into NFPA 25.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
LARRIMER, P.: We should be careful as to how the new definition of a sprinkler system will affect the ITM requirements in NFPA 25 for "systems". The committee accepted a new definition from NFPA 13 that was not yet published.

25-37 Log #19 **Final Action: Accept**
(3.6.4.1.1 Premixed Antifreeze Solution)

Submitter: Milosh T. Puchovsky, Worcester Polytechnic Institute
Recommendation: Revise text to read as follows:
3.6.4.1.1 Premixed Antifreeze Solution. A mixture of an antifreeze material with water that is prepared and factory-mixed by the manufacturer ~~at a factory~~ with a quality control procedure in place that ensures that the antifreeze solution remains homogeneous and that the concentration is as specified.
Substantiation: The definitions for Premixed Anti freeze Solution put forth in the TIA's for NFPA13,13D and 25 all varied slightly. The proposed language has been provided to create a single definition for pre-mixed Antifreeze Solution in NFPA 13, 13D and 25.
This proposed language was created by an intercommittee task group consisting of members of the RSS, SSI and NFPA 25 TC's. This task group was created at the request of the TCC.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-38 Log #22 **Final Action: Accept in Principle**
(3.6.4.1.1 Premixed Antifreeze Solution (New), 5.3.4, and A.5.3.4)

Note: This Proposal originates from Tentative Interim Amendment 25-11-1 (TIA 1014) issued by the Standards Council on March 1, 2011.
Submitter: Russell P. Fleming, National Fire Sprinkler Association, Inc.
Recommendation: *1. Add a new definition as 3.6.4.1.1 to read as follows:*
3.6.4.1.1 Premixed Antifreeze Solution. A mixture of an antifreeze material with water that is prepared by the manufacturer at a factory with a quality control procedure in place that ensures that the antifreeze solution remains homogeneous.
2. Revise 5.3.4 to read as follows:
5.3.4* Antifreeze Systems. ~~The freezing point of solutions in antifreeze shall be tested annually by measuring the specific gravity with a hydrometer or refractometer and adjusting the solutions if necessary.~~ Annually, before the onset of freezing weather, the antifreeze solution shall be tested using the following procedure:
(1) Using installation records, maintenance records, information from the owner, chemical tests, or other reliable sources of information, the type of antifreeze in the system shall be determined.
a) If the type of antifreeze is found to be a type that is no longer permitted, the system shall be drained completely and replaced with an acceptable solution.
b) If the type of antifreeze cannot be reliably determined, then the system shall be drained completely and replaced with an acceptable solution.

(2) If the antifreeze is not replaced in accordance with step 1, test samples shall be taken at the top of each system and at the bottom of each system.
a) If the most remote portion of the system is not near the top or the bottom of the system, an additional sample shall be taken at the most remote portion.
b) If the connection to the water supply piping is not near the top or the bottom of the system, an additional sample shall be taken at the connection to the water supply.
(3) The specific gravity of each solution shall be checked using a hydrometer with a suitable scale or a refractometer having a scale calibrated for the antifreeze solution.
(4) If any of the samples exhibits a concentration in excess of what is permitted by NFPA 25, the system shall be emptied and refilled with a new acceptable solution. If a concentration greater than what is currently permitted by NFPA 25 was necessary to keep the fluid from freezing, alternate methods of preventing the pipe from freezing shall be employed.
(5) If any of the samples exhibits a concentration lower than what is necessary to keep the fluid from freezing, the system shall be emptied and refilled with a new acceptable solution.

~~**5.3.4.1*** Solutions shall be in accordance with Table 5.3.4.1(a) and Table 5.3.4.1(b)~~

5.3.4.~~2.~~1 The use of antifreeze solutions shall be in conformity with state and local health regulations.

5.3.4.1.1* Listed CPVC sprinkler pipe and fittings shall be protected from freezing with glycerin only. The use of diethylene, ethylene, or propylene glycols shall be specifically prohibited.

~~**5.3.4.1.2** The concentration of antifreeze solution shall be limited to the minimum necessary for the anticipated minimum temperature.~~

5.3.4.2* Antifreeze solutions shall comply with one of the following:
(1) The concentration of a glycerin solution measured in an existing system shall be limited to 50% by volume.
(2) Newly introduced solutions shall be factory premixed antifreeze solutions of glycerin (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 48% by volume.
(3) The concentration of a propylene glycol solution measured in an existing system shall be limited to 40% by volume.
(4) Newly introduced solutions shall be factory premixed antifreeze solutions of propylene glycol (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 38% by volume.
(5) Other solutions listed specifically for use in fire protection systems.

5.3.4.3 The antifreeze solution shall be tested at its most remote portion and where it interfaces with the wet pipe system.

5.3.4.3.~~1~~4 Where antifreeze systems have a capacity larger than 150 gal (568 L), tests at one additional point for every 100 gal (379 L) shall be made.

5.3.4.~~3.2.~~4.1 If the ~~test~~ results indicate an incorrect freeze point at any point in the system, the system shall be drained~~, the solution adjusted,~~ and ~~the systems~~ refilled with new premixed antifreeze.

5.3.4.~~3.3.~~4.2 For premixed solutions, the manufacturer's instructions shall be permitted to be used with regard to the number of test points and refill procedure.

4. Remove Table 5.3.4.1(a) and 5.3.4.1(b) and add Table 5.3.4.1 as shown below:

5. Revise A.5.3.4 to read as follows:

A.5.3.4 ~~Many refractometers are calibrated for a single type of antifreeze solution and will not provide accurate readings for the other types of solutions.~~ Sampling from the top and bottom of the system helps to determine if the solution has settled. Antifreeze solutions are heavier than water. If the antifreeze compound is separating from the water due to poor mixing, it will exhibit a higher concentration in the lower portion of the system than in the upper portion of the system. If the concentration is acceptable near the top, but too low near the water connection, it may mean that the system is becoming diluted near the water supply. If the concentration is either too high or too low in both the samples, it may mean that the wrong concentration was added to the system.
Two or three times during the freezing season, test samples can be drawn from test valve B as shown in Figure 7.6.2.1(1) of NFPA 13, especially if the water portion of the system has been drained for maintenance or repairs. A small hydrometer can be used so that a small sample is sufficient. Where water appears at valve B, or where the sample indicates that the solution has become weakened, the entire system should be emptied and refilled with acceptable solution as previously described.

Table 5.3.4.1- Properties of Glycerin and Propylene Glycol

Material	Solution (% by volume)	Specific Gravity at 77ºF (25ºC)	Freezing Point	
			ºF	ºC
Glycerin (C.P. or U.S.P. grade)	0	1.000	32	0
	5	1.014	31	-0.5
	10	1.029	28	-2.2
	15	1.043	25	-3.9
	20	1.059	20	-6.7
	25	1.071	16	-8.9
	30	1.087	10	-12
	35	1.100	4	-15.5
	40	1.114	-2	-19
	45	1.130	-11	-24
	50	1.141	-19	-28
Propylene glycol	0	1.000	32	0
	5	1.004	26	-3
	10	1.008	25	-4
	15	1.012	22	-6
	20	1.016	19	-7
	25	1.020	15	-10
	30	1.024	11	-12
	35	1.028	2	-17
	40	1.032	-6	-21

See Figure A.5.3.4 for expected minimum air temperatures in 48 of the United States and parts of Canada where the lowest one-day mean temperature can be used as one method of determining the minimum reasonable air temperature. In situations where the piping containing the antifreeze solution is protected in some way from exposure to the outside air, higher minimum temperatures can be anticipated.

Where systems are drained in order to be refilled, it is not typically necessary to drain drops. Most systems with drops have insufficient volume to cause a problem, even if slightly higher concentration solutions collect in the drops. For drops in excess of 36 in., consideration should be given to draining drops if there is evidence that unacceptably high concentrations of antifreeze have collected in these long drops.

When emptying and refilling antifreeze solutions, every attempt should be made to recycle the old solution with the antifreeze manufacturer rather than discarding it.

Source: Compiled from United States Weather Bureau records.
For SI units, °C = ⅝ (°F −32); 1 mi = 1.609 km.

Figure A.5.3.4

~~***A.5.3.4.1*** *See Figure A.5.3.4.1.*~~ (*Renumber Figure to A.5.3.4).*

6. Add a new A.5.3.4.2 to read as follows:

A.5.3.4.2 *The use of factory premixed solutions is required because solutions that are not mixed properly have a possibility of separating from the water, allowing the pure concentrate (which is heavier than water) to drop out of solution and collect in drops or low points of the system. Such concentrations are combustible and could present problems during fires. The properties of glycerin are shown in Table A.5.3.4.2.*

Table A.5.3.4.2 Properties of Glycerin and Propylene Glycol

Material	Solution (% by volume)	Specific Gravity at 60ºF (15.6ºC)	Freezing Point	
			ºF	ºC
Glycerin (C.P. or U.S.P. grade)	50 water	1.145	-20.9	-29.4
Hydrometer scale 1.000 to 1.200				
Propylene glycol	60 water	1.034	-6	-21.1
Hydrometer scale 1.000 to 1.200 (subdivisions 0.002)				

C.P.: chemically pure; U.S.P.: United States Pharmacopoeia 96.5%

Substantiation: Recent fire experience and subsequent fire testing have found that certain antifreeze solutions can contribute to the heat release rate of a fire under certain conditions. As such, the use of antifreeze systems needs to be dramatically limited. The following is a summary of the changes proposed and background material for these changes:

1. Ethylene glycol and diethylene glycol have been eliminated because they are poisons and because we know them to be combustible liquids. Research has not been performed to determine the extent that they may or may not contribute to the heat release rate of a fire. In the absence of such data, and knowing that such a small percentage of sprinkler systems utilize these solutions, they have been banned until such time as more research can be performed to quantify their experience. This is not considered to create a problem because a substitute solution (glycerin) is available.
2. Glycerin solutions up to 50% (by volume) and propylene glycol up to 40% (by volume) are permitted because the extensive testing performed by both UL and the FPRF showed that solutions up to these concentrations had the same effect as pure water on some very severe fire challenges. We are aware that 55% glycerin did not do as well in some fire scenarios; however, we believe that the safety factor is sufficient when only premixed solutions are permitted. The manufacturers of glycerin assure us that they can hold the quality of the solutions to + 1%, which should be sufficient for the use we are proposing.
3. The language maintains the allowance for freezer storage systems installed with ESFR sprinklers that have been specifically tested and listed. This allowance has been maintained because such systems are supported by multiple full scale fire tests.
4. Previously approved existing solutions are permitted to stay in service where they only serve unoccupied areas. This is a necessary inclusion in the TIA because these systems were originally designed at a time when these solutions were permitted and the system will freeze (causing damage) if these solutions are drained and replaced with lower concentration solutions. These systems are only allowed to remain in service if they only discharge into unoccupied areas. Life safety will not be compromised by this position.
5. The language was expanded to include other listed antifreeze products that may be developed in the future. We are aware of at least one project underway to get a non-combustible antifreeze recognized and there are some other products that have potential. A listing process would allow these products to come to the market without having to process another TIA.
6. The Table on specific gravity of antifreeze solutions has been modified to eliminate solutions that are no longer permitted. Lower percentage solutions are permitted by NFPA 13, but the specific gravity is not known at this time.
7. The use of premixed solutions is required because solutions that are not mixed properly have a possibility of separating from the water, which allows the pure concentrate (which is heavier than water) to drop out of solution and collect in drops or low points of the system. Such concentrations are combustible and could present problems during fires.
8. The annex text has been revised to reflect the state-of-the-art with respect to testing that has been performed and the requirements of this TIA.
9. Guidance has been provided in an annex note for dealing with drops. Small drops might end up with slightly higher concentrations of antifreeze solutions, but the volumes involved are not likely to cause the problems seen in the field with larger volume solutions. It is impractical to believe that all of the small drops in a system can be completely drained each time the system is drained. Where larger volume drops might have higher concentrations of solutions, consideration needs to be given to draining these larger drops.
10. Language was added to the annex of NFPA 13 to warn users about using appropriate orifice sprinklers and appropriate pressure water supplies when antifreeze solutions of 40% propylene glycol and 50% glycerin are used. The limit of k-4.7 sprinklers or larger and a pressure of 70 psi or less are defensible from the FPRF research (known as the Phase 2 tests). The 45% propylene glycol and the 55% glycerin solutions did not significantly add to the heat release rate of the fires when k-4.7 sprinklers are used below 70 psi (approximately 40 gpm). So, if we limit the solutions to 40% propylene glycol and 50% glycerin, this should be a significant enough safety factor.

Emergency Nature:
1. The proposed TIA intends to correct a previously unknown existing hazard.
2. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

Committee Meeting Action: Accept in Principle
Accept with the following modifications:
1) Accept the definition for 3.6.4.1.1 from 25-37 (Log #19).
2) Revise 5.3.4.2, 5.3.4.2.1 and 5.3.4.2.2 to read as follows:

Proposed Change to Section 5.3.4.2 (legislative text):

5.3.4.2* Antifreeze solutions shall comply with ~~one of the following:~~ 5.3.4.2.1 or 5.3.4.2.2 depending on the system installation date.
~~(1) The concentration of a glycerin solution measured in an existing system shall be limited to 50% by volume.~~
~~(2) Newly introduced solutions shall be factory premixed antifreeze solutions of glycerin (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 48% by volume.~~
~~(3) The concentration of a propylene glycol solution measured in an existing system shall be limited to 40% by volume.~~
~~(4) Newly introduced solutions shall be factory premixed antifreeze solutions of propylene glycol (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 38% by volume.~~
~~(5) Other solutions listed specifically for use in fire protection systems.~~
~~(6) Premixed antifreeze solutions of propylene glycol exceeding 40% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are Listed for such use in a specific application.~~
5.3.4.2.1 For systems installed prior to March 21, 2011:
(1) The concentration of a glycerin solution shall be limited to 50% glycerin by volume.
(2) The concentration of a propylene glycol solution shall be limited to 40% propylene glycol by volume.
(3) Newly introduced solutions shall be factory premixed antifreeze solutions (chemically pure or United States Pharmacopoeia 96.5%).
(4) Other solutions listed specifically for use in fire protection systems shall be permitted.
(5) Premixed antifreeze solutions of propylene glycol exceeding 40% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are Listed for such use in a specific application.
5.3.4.2.2 For systems installed on or after March 21, 2011:
(1) The concentration of a glycerin solution shall be limited to 48% glycerin by volume.
(2) The concentration of a propylene glycol solution shall be limited to 38% propylene glycol by volume.
(3) Newly introduced solutions shall be factory premixed antifreeze solutions (chemically pure or United States Pharmacopoeia 96.5%).
(4) Other solutions listed specifically for use in fire protection systems shall be permitted.
(5) Premixed antifreeze solutions of propylene glycol exceeding 40% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are Listed for such use in a specific application.

Committee Statement: The definition accepted on 25-37 (Log #19) was submitted by a task group aimed at coming up with a single definition for premixed antifreeze in NFPA 13, Standard for the Installation of Sprinkler Systems, 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes, and 25, Standard for the Installation of Private Fire Service Mains and Their Appurtenances. This definition was accepted in lieu of the proposed definition for correlation with those documents. The language provided in 5.3.4.2, 5.3.4.2.1 and 5.3.4.2.2 was provided to the Technical Committee for review as part a TIA to the 2011 edition. This language allows systems installed prior to the effective date to be refilled with a premixed solution up to 50% glycerine or 40% propylene glycol.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: The TC needs to review and carefully consider these requirements in light of the recent FPRF research report on antifreeze solutions discharged from standard spray sprinklers.
FANTAUZZI, J.: This proposal will need further review after the FPRF report on the testing of antifreeze solutions with spray sprinklers is released and correlated with NFPA 13 committee.

25-39 Log #118 **Final Action: Accept in Principle**
(3.6.5 Water Mist System (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.6.5 Water Mist System. A distribution system connected to a water supply or water and atomizing media supplies that is equipped with one or more nozzles capable of delivering water mist intended to control, suppress, or extinguish fires and that has been demonstrated to meet the performance requirements of its listing and this standard.
Renumber 3.6.5 Water Spray System and 3.6.6 Water Tank
Substantiation: Chapter 12 of NFPA 25 covers water mist systems and the standard should contain a definition.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-34 (Log #70).
Committee Statement: See Committee Statement on Proposal 25-34 (Log #70).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-40 Log #119 **Final Action: Accept**
(3.6.5.1 Ultra High-Speed Water Spray System (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
3.6.5.1 **Ultra High-Speed Water Spray System.** A type of automatic water spray system where water spray is rapidly applied to protect specific hazards where deflagrations are anticipated.
Substantiation: Ultra high-speed water spray systems are covered in 10.4. A definition of the system should be in the standard.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: See my Comment on Affirmative on Proposal 25-14 (Log #112).

25-41 Log #331 **Final Action: Accept in Principle**
(3.6.7 Water Mist System (New))

Submitter: Scott J. Harrison, Marioff Inc.
Recommendation: Add text to read as follows:
3.6.7 Water Mist System. A distribution system connected to a water supply or water and atomizing media supplies that is equipped with one or more nozzles capable of delivering water mist intended to control, suppress, or extinguish fires and that has been demonstrated to meet the performance requirements of its listing and this standard.
Substantiation: Definitions for all types of Water Based Fire Protection Systems are provided under section 3.6 except Water Mist Systems. Since Water Mist Systems are referenced in the body and annex of this standard (Paragraph 2.4 and Annex G.1.1) as well as having an entire chapter devoted to the technology (Chapter 12) it would be appropriate to provide a formal definition of this fire protection system in the list of system types.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-34 (Log #70).
Committee Statement: See Committee Statement on Proposal 25-34 (Log #70).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-42 Log #154 **Final Action: Accept in Principle**
(4.1.x through 4.1.x.4, and A.4.1.x, A.4.1.x.2, and A.4.x.4 (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise as follows;
4.1.X* Hydraulic Design Information Sign.
Add the following section:
4.1.X.1 A permanently marked metal or rigid hydraulic information sign shall be placed at the alarm valve. dry pipe valve. preaction valve, or deluge valve supplying the corresponding hydraulically designed area.
4.1.X.2* The sign shall include the following information:
(1) Location of the design area or areas
(2) Discharge densities over the design area or areas
(3) Required flow and residual pressure demand at the base of riser
(4) Occupancy classification or commodity classification and maximum permitted storage height and configuration
(5) Hose stream allowance included in addition to the sprinkler demand
(6) The name of the installing contractor or person providing the information
A.4.1.X.2 Insert sample sign
A.4.1.X The information needed to provide the appropriate sign can be found with the original system installation and acceptance testing documentation. If these records are not available. the owner should contract with a qualified engineer, consultant. or contractor to evaluate the hydraulic design of the system for the purposes of providing the information required by the sign. Where the evaluation shows that the design utilized the pipe schedule design approach, a further analysis beyond that needed to provide the information for the sign is not required.
4.1.X.3 Where system design approach utilizes the pipe schedule method a permanently marked metal or rigid information sign shall be placed at the alarm valve. dry pipe valve, or preaction valve supplying the pipe scheduled area
4.1.X.4* The sign shall include the following information:
(1) Location of the pipe scheduled design area
(2) The occupancy classification
(3) The name of the installing contractor or person providing the information
A.1.X.4 Insert sample sign
Substantiation: The standard currently does not address the issue of missing system design information. While this is not a part of the inspection, testing, and maintenance requirements specified by the standard, the information is critical for good fire protection and the owner should be required to provide the information. This is consistent with adding the system information sign that was previously adopted by the committee.
Committee Meeting Action: Accept in Principle
Revise text to read as follows;
4.1.X* Hydraulic Design Information Sign.
Add the following section:
4.1.X.1 A permanently marked metal or rigid hydraulic information sign shall be placed at the system riser ~~alarm valve. dry pipe valve. preaction valve, or deluge valve~~ supplying the corresponding hydraulically designed area.
4.1.X.2* The sign shall include the following information:
(1) Location of the design area or areas
(2) Discharge densities over the design area or areas
(3) Required flow and residual pressure demand at the base of riser
(4) Occupancy classification or commodity classification and maximum permitted storage height and configuration
(5) Hose stream allowance included in addition to the sprinkler demand
(6) The name of the installing contractor or person providing the information
A.4.1.X.2 Insert sample sign
A.4.1.X The information needed to provide the appropriate sign can be found with the original system installation and acceptance testing documentation. If these records are not available. the owner needs to obtain this information or have the system evaluated for the purposes of providing the information required on the sign. Where the evaluation shows that the design utilized the pipe schedule design approach, a further analysis beyond that needed to provide the information for the sign would not be required.
4.1.X.3 Where system design approach utilizes the pipe schedule method a permanently marked metal or rigid information sign shall be placed at the system riser ~~alarm valve. dry pipe valve, or preaction valve~~ supplying the pipe scheduled area
4.1.X.4* The sign shall include the following information:
(1) Location of the pipe scheduled design area
(2) The occupancy classification
(3) The name of the installing contractor or person providing the information
A.1.X.4 Sample Signs

The system located at _____ is designated to discharge at a rate of _____ gpm/ft² (L/min/m²) of floor area over a maximum area of _____ ft² (m²) when supplied with water at a rate of _____ gpm (L/min) at _____ psi (bar) at the base of the riser. Hose stream allowance of _____ gpm (L/min) is included in the above.

Occupancy classification _____

Commodity classification _____

Maximum storage height _____

Storage configuration _____

Name of installing contractor or individual providing the data:

_____

Figure A.4.1.X.2 Sample Hydraulic Information Sign

Pipe Schedule System

System location _____

Occupancy classification _____

Name of installing contractor or individual providing the data:

_____

Figure A.4.1.X.4 Sample Pipe Schedule System Sign

Committee Statement: For consistency the technical committee provided a single location for the signage at the system riser.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 27 Negative: 6
Explanation of Negative:

DRYSDALE, M.: Requiring that the design information be available is consistent with NFPA 13 and is reasonable. It should be acceptable to have the information on a hydraulic design information sign on the riser or in available design documents. Over time, information signs can become illegible or lost. The current systems for maintaining electronic data make that option equally secure.

ELVOVE, J.: The proposed new text for A.4.1.X states that when original system installation records are not available, "the owner needs to obtain this information or have the system evaluated for the purposes of providing the information required on the sign." Though this is annex material, if this language were to be enforced, it places a tremendous cost upon an owner to have his/her system re-evaluated when an "inspector" simply notices a missing sign. Moreover, there's no requirement for the "inspector" to evaluate whether the information on the sign is correct so it's possible that a system without a sign is more reliable than a system with a sign with incorrect information, yet only the former would potentially facilitate a system evaluation. No justification has been provided to substantiate this retroactive requirement. Also for what it's worth, the name given for the sample sign shown in the annex is inconsistent with the title of this section as it omits "Design."

LARRIMER, P.: The scope of NFPA 25 does not address the adequacy of the design of a system. The information on this sign is focused on the design of the system. Requiring a costly hydraulic evaluation to be performed to provide design information on a sign that is not used for any of the ITM activities that are required by NFPA 25 is absolutely ridiculous.
In addition, when the new definition of a "system" is incorporated (see 25-36), this will likely require multiple signs.
See also the committee statement on 25-102 which reads as follows: The intent of NFPA 25 is to address wear and tear and not design/installation issues. .....

SAIDI, J.: Owner's cost burden for obtaining this information or have the system evaluated for the purposes of providing the information required on the sign when original system installation records are not available, is unsubstantiated and should be removed.

SHEPPARD, J.: In this digital age, signs mean less when the data is kept elsewhere on the site in record form. AHJ had original data on file at the time of installation. Waste of time and energy, and costs to keep up with this sign requirement throughout the premesis.

UNDERWOOD, D.: This is a digital world. Sign get destroyed and illegible.

25-43 Log #149 **Final Action: Accept**
(4.1.1.1, 4.1.1.1.1, and A.4.1.1.1.1)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Make the following editorial changes:
A.4.1.1.1.1
4.1.1.1* Buildings.
4.1.1.1.1* (delete the asterisk)
Substantiation: This is editorial. The annex material for 4.1.1.1 is incorrectly shown in the annex as A.4.1.1.1.1.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-44 Log #95 **Final Action: Accept in Principle**
(4.1.1.1, 4.1.2.1, and 4.1.2.2 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change title and number of this section and add new text as shown:

Renumber 4.1.2 and subsequent sections.

~~4.1.1.1 Buildings.~~ 4.1.2 Freeze Protection. The ~~building~~ property owner or designated representative shall ensure that all ~~areas of the building containing~~ water-filled piping ~~shall be~~ is maintained at a minimum temperature of 40°F (4.4°C) and not exposed to freezing conditions.

4.1.2.1 All areas of the building containing water-filled piping without other means of freeze protection shall be maintained at a minimum temperature of 40°F (4.4°C).
4.1.2.2 All other means of freeze protection including valve enclosures, heat tracing, insulation, and antifreeze solutions shall be inspected, tested, and maintained in accordance with this standard.
Substantiation: The current section title doesn't accurately describe that freeze protection is being addressed. It needs to be clear that the property owner is responsible to maintain proper heat in buildings with water-filled pipes as well as properly maintain other means of freeze protection. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
T**here is a existing sequencing error in 4.1.1.1 and 4.1.1.1.1**
1)Delete section 4.1.1.1,
2)Correct sequencing for 4.1.1.1.1,
3)Insert new sections 4.1.2, 4.1.2.1, A.4.1.2.2, and 4.1.2.3
4) Re-sequence following paragraphs
4.1 Responsibility of the Property Owner or Designated Representative.
4.1.1* Responsibility for Inspection, Testing, Maintenance, and Impairment. The property owner or designated representative shall be responsible for properly maintaining a waterbased fire protection system.
~~4.1.1.1 Buildings.~~ ~~The building owner shall ensure that all areas of the building containing water-filled piping shall be maintained at a minimum temperature of 40°F (4.4°C) and not exposed to freezing conditions.~~
~~4.1.1.1.1*~~4.1.1.1 Inspection, testing, maintenance, and impairment shall be implemented in accordance with procedures meeting those established in this document and in accordance with the manufacturer's instructions.
4.1.1.2 Inspection, testing, and maintenance shall be performed by personnel who have developed competence through training and experience.
4.1.2 Freeze Protection. The property owner or designated representative shall ensure that water-filled piping is maintained at a minimum temperature of 40°F (4.4°C) unless an approved anti-freeze solution is utilized.
A.4.2.1.2 Other means of freeze protection for water-filled piping include heated valve enclosures, heat tracing, insulation, antifreeze solutions, or other methods are allowed by the applicable installation standard. Installation standards require heat tracing protecting fire protection piping against freezing to be supervised.
4.1.2.1 All areas of the building containing water-filled piping that does not have another means of freeze protection shall be maintained at a minimum temperature of 40°F (4.4°C).
4.1.2.2 Aboveground water-filled pipes that pass through open areas, cold rooms, passageways, or other areas exposed to temperatures below 40°F (4°C), protected against freezing by insulating coverings, frostproof casings, listed heat tracing systems, or other reliable means shall be maintained at temperatures between 40°F (4°C) and 120°F (48.9°C).
4.1.2.3 Where other approved means of freeze protection for water- filled piping as described in 4.1.2.2 are utilized they shall be inspected, tested, and maintained in accordance with this standard.
Committee Statement: Provides better clarity for what areas must be heated and also specifically addresses other freeze protection options.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:

SHEPPARD, J.: 4.1.2 should refer to bldg. temperature, not water. 4.1.2.1 refers to bldg. temperature, not water. Proponent's substantiation refers to building temperature, not water. Paragraphs should be in sync.

UNDERWOOD, D.: 4.1.2 should refer to bldg. temp. not water 4.1.2.1 should refer to water not bldg. lets try to be consistent.

25-45 Log #99 **Final Action: Accept in Principle**
(4.1.1.1.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change the number to 4.1.1.1 and revise the text as shown.
4.1.1.1.~~1~~* Inspection, testing, maintenance, and impairment procedures shall be implemented ~~in accordance with procedures meeting those~~ as established in this document and in accordance with the manufacturer's instructions.
Substantiation: This section was numbered wrong in the current document. The new number shown assumes current 4.1.1.1 will be renumbered per another proposal on this section. The word "procedures" needed to be added and other changes made to make the sentence understandable. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-46 (Log #148).
Committee Statement: See Committee Statement on Proposal 25-46 (Log #148).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-46 Log #148 **Final Action: Accept**
(4.1.1.1.1)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise text to read as follows:
4.1.1.1.1* Inspection, testing, maintenance, and impairment procedures shall be implemented in accordance with ~~procedures meeting~~ those established in this document and in accordance with the manufacturer's instructions.
Substantiation: The current wording is hard to follow and is not grammatically correct. For example, "emergency" impairments are not implemented-it is the procedures for dealing with impairments that are implemented.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-47 Log #34 **Final Action: Reject**
(4.1.1.1.2, 4.1.4.1, and A.4.1.4.1.1 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add new text to read as follows:
4.1.4.1.1* Impairments shall be corrected or repaired immediately.
A.4.1.4.1.1 The process of correcting or repairing an impairment should begin

as soon as the impairment is discovered. If the necessary parts are on hand the correction or repair can be accomplished in a matter of a few hours. However, in many cases it make take several days to order repair parts, have them shipped, and schedule manpower to make the repair.

4.1.1.1.2 When an emergency impairment is discovered procedures as described in Section 15.6 of this standard shall be implemented until the correction or repair is complete including the "Required Action" described in the Summary of Component Replacement Action Requirements table in the applicable chapter.

Substantiation: The current language does not put any pressure on the property owner or the designated representative to have an impairment corrected with any sense of urgency. An impairment needs to be addressed immediately with the understanding that in many cases repair parts may need to be ordered and labor scheduled to make the repair. No matter how long it takes to make the correction of repair, emergency impairment procedures should be implemented right away. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Reject

Committee Statement: Section 4.1.9 sufficiently addresses impairments and directs the user to Chapter 15.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-48 Log #73 **Final Action: Accept in Principle**
(4.1.1.2)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell

Recommendation: Add the term qualified to existing paragraph.

Inspection, testing, and maintenance shall be performed by qualified personnel who have developed competence through training and experience.

Substantiation: Personnel who perform inspection, testing, and maintenance not only should have developed competence through experience and training, but should meet the definition of qualified by the authority having jurisdiction.

This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Accept in Principle

Committee Statement: See Committee Action on Proposal 25-49 (Log #150). The language being removed in Proposal 25-49 (Log #150) is redundant as it already exits in the definition of qualified.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-49 Log #150 **Final Action: Accept**
(4.1.1.2)

Submitter: Russell B. Leavitt, Telgian Corporation

Recommendation: Revise text to read as follows:

4.1.1.2 Inspection, testing, and maintenance shall be performed by qualified personnel. ~~who have developed competence through training and experience.~~

Substantiation: The standard has a definition for qualified and using the term "qualified" is consistent with the style of the standard.

Committee Meeting Action: Accept

Number Eligible to Vote: 33

Ballot Results: Affirmative: 32 Negative: 1

Explanation of Negative:

ELVOVE, J.: By adding the term "qualified" in paragraph 4.1.1.2, there should have been multiple companion proposals to remove the term "qualified' everywhere else it appears in the standard. In addition, text should have been proposed to delineate where "qualifications" as outlined by 4.1.1.2 weren't necessarily meant to apply. This is a "one-size-fits-all" approach that bolsters all ITM requirements needlessly and without any justification (and has unintended consequences). It muddies how the term has traditionally been applied in the standard in the past (e.g., why qualified personnel were specifically singled out to perform tasks outlined in 4.1.4.2, 4.5.4, 5.3.3.4, 8.3.2.7, 8.3.3.1, 8.3.5.2, 9.5.2.1, 14.3.3, A3.3.17, A.4.1.5, A.10.2.4, A15.5 and C.3.1, and as proposed in 13.6.3.1 per ROP 25-276 and in A15.7 per ROP 25-342) and may now eliminate owners from being permitted to conduct simple tasks such as weekly inspection of gages, water or fuel tank conditions, and valves that traditionally have been done quite adequately by in house staff in the past.

25-50 Log #CP17 **Final Action: Reject**
(4.1.1.2 (New))

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,

Recommendation: Insert new 4.1.1.2 and renumber accordingly:

4.1.1.2 Inspection, test, maintenance, or impairment procedures not performed in accordance with this standard shall be considered a deficiency.

Substantiation: In order to properly enforce the requirements of NFPA 25 any procedure not performed should be considered a deficiency.

Committee Meeting Action: Reject

Committee Statement: This concept needs further refinement. Should it apply to all ITM tasks.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-51 Log #96 **Final Action: Reject**
(4.1.1.2.1 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell

Recommendation: Add the following new text:

4.1.1.2.1 At the conclusion of inspection and/or testing activities the property owner or authorized representative shall be advised of any deficiencies found.

Substantiation: It is important that at the conclusion of performing inspections or tests that the proper person be notified right away of any deficiencies found, including non-critical ones, critical ones, and impairments. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Reject

Committee Statement: This issue is adequately addressed in the "records" section of the standard. It is not appropriate for the inspector to communicate issues to the owner verbally.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-52 Log #151 **Final Action: Accept in Principle**
(4.1.1.3)

Submitter: Russell B. Leavitt, Telgian Corporation

Recommendation: Revise as follows:

4.1.1.3* Where the property owner or designated representative is not the occupant, the property owner or designated representative shall be permitted to delegate the authority for inspecting, testing, ~~maintenance~~ maintaining, and managing impairments of the fire protection system to a designated representative.

Substantiation: The current use of the term "impairment" is not grammatically correct for the intent and is confusing. The proposed wording is clear regarding the intent.

Committee Meeting Action: Accept in Principle

Revise 4.1.1.3 to read as follows:

4.1.1.3* Where the property owner or designated representative is not the occupant, the property owner or designated representative shall be permitted to delegate the authority for inspecting, testing, maintenance and the managing of impairments of the fire protection system to a designated representative.

Committee Statement: The language as proposed makes it appear that the ITM tasks apply to impairments.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-53 Log #315 **Final Action: Reject**
(4.1.1.3 (New))

Submitter: Shane M. Clary, Bay Alarm Company

Recommendation: Add new text to read as follows:

4.1.1.3 State or local licensure regulations shall be followed to determine qualified personnel. Depending on state or local licensure regulations, qualified personnel shall include, but not be limited to, one or more of the following:

(1) Personnel who are registered, licensed, or certified by a state or local authority

(2) Personnel who are certified by a nationally recognized certification organization acceptable to the authority having jurisdiction

(3) Personnel who are factory trained and certified for water-based fire suppression systems of the specific type and brand of system and who are acceptable to the authority having jurisdiction

Substantiation: There is no present requirement within NFPA 25 for the qualified person or persons to demonstrate their competence through certification or license.

Renumber following paragraphs as required.

Committee Meeting Action: Reject

Committee Statement: This is a jurisdictional issue. If a jurisdiction does not require specific licensure, this proposed comment would not apply. If a jurisdiction does require specific licensure, those requirements stand on their own.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-54 Log #152 **Final Action: Accept in Principle**
(4.1.1.4)

Submitter: Russell B. Leavitt, Telgian Corporation

Recommendation: Revise as follows:

4.1.1.4 Where a designated representative has received the authority for ~~inspection~~ inspecting. testing, ~~maintenance~~ maintaining. and managing impairments, the designated representative shall comply with the requirements identified for the property owner or designated representative throughout this standard.

Substantiation: The proposed language is grammatically correct, correlates with the language of 4.1.1.3, and more clearly communicates the intent of the section.
Committee Meeting Action: Accept in Principle
Revise 4.1.1.4 to read as follows:
4.1.1.4 Where a designated representative has received the authority for ~~inspection~~ inspecting. testing, maintenance ~~maintaining.~~ and the managing of impairments, the designated representative shall comply with the requirements identified for the property owner or designated representative throughout this standard.
Committee Statement: This language was revised to mirror the language approved in Proposal 25-80 (Log #151). The language as proposed makes it appear that the ITM tasks apply to impairments.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-55 Log #10 **Final Action: Reject**
(4.1.3)

Submitter: James Everitt, Western Regional Fire Code Development Committee
Recommendation: Modify, Re-title and Renumber Section 4.1.3
Add new Section 4.1.4 and renumber subsequent Sections
4.1.3.1 Notification The property owner or designated representative shall notify the authority having jurisdiction, the fire department, if required, and the alarm receiving facility before testing or shutting down a system or its supply.
4.1.3.2 The notification of system shutdown shall include the purpose for the shutdown, the system or component involved, and the estimated time of shutdown.
4.1.3.3 The authority having jurisdiction, the fire department, and the alarm-receiving facility shall be notified when the system, supply, or component is returned to service.
4.1.4 Hazard Mitigation Measures. Where a fire protection system is out of service for more than 4 hours in a 24-hour period, the property owner or designated representative shall arrange for one of the following:
(a) Evacuation of the building or portion of the building affected by the system out of service
(b) An approved fire watch
(c) Establishment of a temporary water supply
(d) Establishment and implementation of an approved program to eliminate potential ignition sources and limit the amount of fuel available to the fire.
Substantiation: Language more in line with requirements in NFPA 1 Fire Code.
Committee Meeting Action: Reject
Committee Statement: The information in the proposed 4.1.4 is adequately covered in Chapter 15.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-56 Log #316 **Final Action: Reject**
(4.1.3)

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Revise text to read as follows:
4.1.3 Notification of System Shutdown. The property owner or designated representative shall notify the authority having jurisdiction, the fire department, if required, and the supervising station, communications center or emergency response agency ~~alarm-receiving facility~~ before testing or shutting down a system or its supply.
Substantiation: "Alarm receiving facility" is not defined within NFPA 72® or NFPA 1221. "Supervising Station, Communications Center and Emergency Response Agency" are.
Committee Meeting Action: Reject
Committee Statement: The terms proposed by the submitter are limiting. The existing term "alarm receiving facility" is more inclusive. This section is not intended to limit the scope of alarm receiving facilities to the list submitted by the proposer.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
SHEPPARD, J.: Committee Statement: "proponent", not "proposer".
UNDERWOOD, D.: Proponent not proposer.

25-57 Log #CP2 **Final Action: Accept**
(4.1.3)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise Title of 4.1.3 to read:
4.1.3 Notification of System Shutdown or Testing...
Remainder of section to remain unchanged.
Substantiation: The 2011 title is not consistent with the requirements within the section. The current title is limiting and should be refined to include "testing"
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-58 Log #129 **Final Action: Reject**
(4.1.3.2)

Submitter: Kevin Turay, SimplexGrinnell / Rep. Tyco/SimplexGrinnell
Recommendation: Add a new requirement to 4.1.3 and renumber subsequent section(s) as follows:
4.1.3.2 The property owner or designated representative shall verify that the fire department and the alarm-receiving facility, if connected, has received a transmission of at least one alarm and one trouble signal at the off premises location upon completion of all Inspection, Testing, and Maintenance services.
Substantiation: This requirement is needed to ensure that transmission of all off premises signals are occurring and that the system is functioning correctly upon completion of all services. Many times the off premises transmission method is bypassed or disconnected during performance of Inspection, Testing, and Maintenance services to avoid false alarm response and upon reconnection the property owner or designated representative needs to ensure that all future transmissions will occur as required. This proposal is being submitted by the Tyco Codes and Standards ITM Task Group.
Committee Meeting Action: Reject
Committee Statement: The reference to the FD is not appropriate. This may be an issue for NFPA 72, National Fire Alarm and Signaling Code, and the proposed NFPA 4.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-59 Log #317 **Final Action: Reject**
(4.1.3.2)

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Revise text to read as follows:
4.1.3.2 The authority having jurisdiction, the fire department, and the supervising station, communications center or emergency response agency ~~alarm-receiving facility~~ shall be notified when the system, supply, or component is returned to service.
Substantiation: "Alarm receiving facility" is not defined within NFPA 72® or NFPA 1221. "Supervising Station, Communications Center and Emergency Response Agency" are.
Committee Meeting Action: Reject
Committee Statement: The terms proposed by the submitter are limiting. The term "alarm receiving facility" is more inclusive. This section is not intended to limit the scope of alarm receiving facilities to the list submitted by the proposer.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-60 Log #297 **Final Action: Accept**
(4.1.4.1, 4.1.4.2, and A.4.1.4.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
Move the Annex material from A.4.1.4.2 to A.4.1.4.1 with appropriate asterisk reference.
Substantiation: Annex material is more appropriately associated with 4.1.4.1.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-61 Log #28 **Final Action: Reject**
(4.1.4.1.3 and A.4.1.4.1.3 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add the following new wording and annex material to section 4.1.4.1:
4.1.4.1.3* Critical deficiencies shall be corrected or repaired within 30 days.
A.4.1.4.1.3 The process of correcting or repairing a critical deficiency should begin as soon as it is discovered and with a sense of urgency. If the necessary parts are on hand the correction or repair can be accomplished in a matter of a few hours. However, in many cases it make take several days to order repair parts, have them shipped, and schedule manpower to make the repair. There are very few instances when a critical deficiency cannot be corrected or repaired within 30 days. If the correction or repair can't be accomplished within 30 days, the AHJ should be notified and permission obtained for an exception to this requirement.
Substantiation: The current language does not put any pressure on the property owner or the designated representative to have a critical deficiency corrected with any sense of urgency. A critical deficiency needs to be addressed quickly with the understanding that in many cases repair parts may need to be ordered and labor scheduled to make the repair. If the correction or repair can't be done within 30 days the AHJ should be notified and an exception provided. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Reject
Committee Statement: The time frame for the correction/repair of deficiencies is up to the AHJ. The proposed time frame is not supported by statistical data. This language would prohibit the use of abatement plans as an interim measure.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
OSBURN, M.: I believe the proponent has raised a valid point regarding repairing deficiencies in a timely manner. In jurisdictions that do not have a mandatory reporting system, many owners choose not to make these repairs until they are forced by the local AHJ. By adding the proposed language, the building owner will now have a defined time frame to comply and make the appropriate repairs.

25-62 Log #29 **Final Action: Reject**
(4.1.4.1.4 and A.4.1.4.1.4 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add the following new wording and annex material to section 4.1.4.1:
4.1.4.1.4* Non-Critical deficiencies shall be corrected or repaired within 90 days.
A.4.1.4.1.4 Non-critical deficiencies do not have an effect on system performance and therefore correcting or repairing them is allowed to take longer. If the correction or repair can't be accomplished within 90 days, the AHJ should be notified and permission obtained for an exception to this requirement.
Substantiation: Currently there is no time frame stated for getting corrections or repairs performed and many building owners simply ignore them. A non-critical deficiency needs to be addressed but not as quickly or with the same sense of urgency as an impairment or critical deficiency. If the correction or repair can't be done within 90 days the AHJ should be notified and an exception provided. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The time frame for the correction/repair of deficiencies is up to the AHJ. The proposed time frame is not supported by statistical data. This language would prohibit the use of abatement plans as an interim measure.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
OSBURN, M.: See my Explanation of Negative on Proposal 25-61 (Log #28).

25-63 Log #318 **Final Action: Reject**
(4.1.4.3 (New))

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Add new text to read as follows:
4.1.4.3 State or local licensure regulations shall be followed to determine qualified personnel. Depending on state or local licensure regulations, qualified personnel shall include, but not be limited to, one or more of the following:
(1) Personnel who are registered, licensed, or certified by a state or local authority
(2) Personnel who are certified by a nationally recognized certification organization acceptable to the authority having jurisdiction
(3) Personnel who are factory trained and certified for water-based fire suppression systems of the specific type and brand of system and who are acceptable to the authority having jurisdiction
Substantiation: There is no present requirement within NFPA 25 for the qualified person or persons to demonstrate their competence through certification or license.
Renumber following paragraphs as required.
Committee Meeting Action: Reject
Committee Statement: This is a jurisdictional issue. If a jurisdiction does not require specific licensure, this comment would not apply. If a jurisdiction does require specific licensure, those requirements stand on their own.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-64 Log #30 **Final Action: Reject**
(4.1.4.3 and A.4.1.4.3 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add new text to section 4.1.4 and a new annex note as follows:
4.1.4.3 Refer to the "Summary of Component Replacement Action Requirements" tables in chapters 5 through 13 for the actions that shall be performed whenever a component in a water based fire protection system is adjusted, repaired, reconditioned or replaced.
A.4.1.4.3 These tables describe specific actions in the form of an inspection or test or cross-reference to another NFPA standard that needs to be performed when a component is adjusted, repaired, reconditioned or replaced. These additional actions are required to provide a reasonable level of assurance that the component will function as intended during a fire event.
Substantiation: Even though each of these tables in chapters 5 through 13 have specific charging paragraphs that should prompt the required actions to be performed, the owner may not be aware of such requirements, especially if they don't read past chapter 4. By putting the proposed new language in Chapter 4, the owner is made well aware of these specific follow-up requirements. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: This concept is already addressed in the individual system chapters. The tables are considered summary tables and not all inclusive.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-65 Log #319 **Final Action: Reject**
(4.1.5)

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Revise text to read as follows:
4.1.5* Changes in Occupancy, Use, Process, or Materials. ~~The property owner or designated representative shall not make changes in the occupancy, the use or process, or the materials used or stored in the building without evaluation of the fire protection systems for their capability to protect the new occupancy, use, or materials~~. Where changes in the occupancy, hazard, water supply, storage commodity, storage arrangement, building modification, or other condition that affects the installation criteria of the system are identified, the property owner or designated representative shall promptly take steps to evaluate the adequacy of the installed system in order to protect the new occupancy, use, material, building or hazard in question.
Substantiation: Section 4.1.6.1 of this Standard appears to state to same requirements, yet using different language to get to the same point. The same language should be used in both sections.
Committee Meeting Action: Reject
Committee Statement: Its the owners responsibility to not make changes that negatively impact systems and the current language supports that concept.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: See my comments for 25-7 (Log #CP13).
UNDERWOOD, D.: See comment on 25-7 (Log #CP13).

25-66 Log #254 **Final Action: Reject**
(4.1.5 and 4.1.6)

Submitter: Joshua Elvove, U.S. General Services Administration
Recommendation: Delete Sections 4.1.5 and 4.1.6 completely...
Substantiation: In its letter denying an appeal of a previous effort to delete these two sections from NFPA 25, the Standards Council recommended that the NFPA Technical Committee decide for itself, whether the document scope should be revised to include or exclude sections 4.1.5 (Changes in Occupancy, Use Process or Materials) and 4.1.6 (Addressing Changes in Hazard). The appeal was submitted because of a concern that the existing inspection, testing and maintenance requirements of the document do not ensure that a system that's inspected, tested and maintained in accordance with NFPA 25 will actually perform as designed (i.e,. to control and/or extinguish a fire). Therefore, there would appear to be no need for this document to even address changes that may affect the design, especially when this is already addressed by local fire codes. As such, I have resubmitted this proposal to facilitate a discussion on the rightful scope of NFPA 25, and whether it should go further to address design and installation issues, or conversely, whether all such references to design and installation issues should be deleted. Note: deleting design and installation doesn't prohibit creating a new, companion document on this topic.
Committee Meeting Action: Reject
Committee Statement: These sections are within the scope of the standard and technical committee. The annex provides sufficient direction on the implementation of these concepts. This issue was further clarified by the task group work that generated proposal 25-7 (Log #CP13) that was accepted and more clearly defines the scope of the document to include items identified within 4.1.5 and 4.1.6.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 27 Negative: 6
Explanation of Negative:
DRYSDALE, M.: There are two broad topics this standard can address, the capability of the installed equipment to function as designed and the capability of the design to control a fire. The first is thoroughly addressed in NFPA 25. The capability of the design options are addressed in the design standards. Local building and fire codes, and decisions by the AHJ identify the acceptable design standards.
ELVOVE, J.: This continues to be a divisive issue where most owners and the balance of committee members can't form consensus. I stand by my original substantiation and statements made previously on the floor and in similar proposals and comments. Note: I could potentially concede on this point if proposals ROP 25-8, 11, 67 and 308 were accepted and the document scope was revised per my comment on ROP 25-7.

LARRIMER, P.: See my negative comments on 25-7 and 25-42.

SAIDI, J.: The term "Normal" needs to revised and better defined. Owner must have the prerogative to do the evaluations as of the 25 ITM scope.

SHEPPARD, J.: Agree with submitter's substantiation and see my comments on 25-7 (Log #CP13). Further, outside scope of Technical Committee.

UNDERWOOD, D.: Agree with submitter. See comment on 25-7 (Log #CP13).

25-67 Log #255 **Final Action: Reject**
(4.1.5.1 and A.4.1.5.1)

Submitter: Joshua Elvove, U.S. General Services Administration
Recommendation: Revise 4.1.5.1 as follows:

4.1.5.1* The owner or designated representative shall be permitted to include the evaluation required by 4.1.5 ~~shall not be considered~~ as part of the normal inspection, testing and maintenance of a water based fire protection system.

A.4.1.5.1 The evaluation required by 4.1.5 is not typically a ~~shall not be considered~~ part of the normal inspection, testing, and maintenance required by this standard.

Substantiation: Should Section 4.1.5 remain, then it needs to be revised to address the owner's prerogative of adding the evaluation as part of their ITM. This permission needs to be listed in the body of the standard. But in order to ensure it's clear that such an evaluation is not routinely expected, the previous requirement from 4.1.5.1 has been moved to the annex.
Committee Meeting Action: Reject
Committee Statement: The standard already permits the owner to seek this service at any time.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:

ELVOVE, J.: NFPA 25 should not specify who does what, or what constitutes a "normal" inspection when the scope of NFPA 25 includes evaluations to assess system performance. Current text states that the evaluation as prescribed by 4.1.5 shall not be considered part of the normal inspection. Such prohibitive language is in appropriate as the scope of NFPA 25 "inspection" should be anything within the document scope that an owner decides to do with in house staff or as contracted with outside personnel which can include a hazard evaluation.

LARRIMER, P.: The standard restricts the evaluation from being part of the normal inspection testing and maintenance of water based systems. This rewrite simply allows one to make the evaluation in 4.1.5 part of a normal inspection testing and maintenance contract without having to write language into a contract to override the existing restriction in 4.1.5.1.

SAIDI, J.: The submitter's proposal should have been accepted.

25-68 Log #153 **Final Action: Reject**
(4.1.7)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Delete entire text:
~~**4.1.7 Valve Location. The location of shutoff valves shall be identified.**~~
Substantiation: This general requirement is unclear as to the intent. 13.3.1 and 13.3.1.1 address signs for control valves. If the intent of 4.1.7 is for the shutoff valves to be identified in a particular way or for a particular function, then this should be specified.
Committee Meeting Action: Reject
Committee Statement: The location of shutoff valves needs to be identified for ITM purposes and to meet the needs of emergency response personnel.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-69 Log #11 **Final Action: Reject**
(4.1.7 and 4.1.8)

Submitter: James Everitt, Western Regional Fire Code Development Committee
Recommendation: Modify Sections 4.1.7 and 4.1.8 as follows:

4.1.7 Valve Location. The location of shutoff valves shall be identified in an approved manner.

4.1.8 Information Sign.

4.1.8.1 A permanently marked metal or rigid plastic information sign shall be placed at the system control riser supplying a sprinkler system, an antifreeze loop, dry system, preaction system, or auxiliary system control valve.

4.1.8.2 Each sign shall be secured with a corrosion-resistant wire, chain, or other approved means and shall indicate at least the following information in an approved manner:

(1) Location of the area served by the system

(2) Location of auxiliary drains and low-point drains for dry pipe and preaction systems

(3) The presence and location of antifreeze or other auxiliary systems

(4) The presence and location(s) of heat tape

Substantiation: It is common for building engineers to create valve and riser signs using in-house methods. Signs can be too small and their information difficult to understand and read. This change is necessary to ensure that fire service personnel can readily process sign information. Sign information should match emergency plans where provided.
Committee Meeting Action: Reject
Committee Statement: The language proposed for 4.1.7 was modified in a similar fashion in 25-71 (Log #320). The proposed modification to 4.1.8.1 addresses sprinkler systems only. The standard addresses many water-based systems, not just sprinkler systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-70 Log #238 **Final Action: Reject**
(4.1.7 and A.4.1.7 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add a section new 4.1.7 and annex as shown and renumber subsequent sections as necessary.
4.1.7* Water-Based Fire Protection System Evaluation
A.4.1.7 Changes to the water supply or to the building or its use may have transpired since it was originally occupied and the current owner or designated representative may not be aware of the changes. Therefore, it is important to evaluate the capability of the fire protection systems to protect the building and hazards periodically. If the codes and standards enforced when the building was originally built are known, they can be used to perform the evaluation. If they are not know, the evaluation should be performed based on the current codes and standards enforced.
4.1.7.1 An evaluation of all water-based fire protection systems shall be performed every five years to determine the system(s) capability to protect the building and hazards based on the current occupancy, use, and/or materials.
4.1.7.1.1 The evaluation shall be based on the current editions of the applicable codes and standards required by the AHJ.
4.1.7.1.2 The evaluation shall be allowed to be based on the applicable codes and standards required by the AHJ at the time of the original occupancy of the building or the time of the last change in the building, hazards, occupancy, use, and/or materials.
4.1.7.2
Substantiation: Although the Owner's Section on Inspection reports was added to the annex last cycle, most inspection reports already included questions about changes in the building, use, occupancy, etc. Most owners either don't know the correct answer, or don't answer correctly. By requiring an evaluation at least every five years, there is a level of assurance that the fire protection system will actually protect the building. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The periodic evaluation frequency is arbitrary. Furthermore, it may be difficult to obtain records for older systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-71 Log #320 **Final Action: Accept in Principle**
(4.1.7.1 (New))

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Add new text to read as follows:

4.1.7 Valve Location. The location of shutoff valves shall be identified.

4.1.7.1 The valve locations shall be identified at the system riser.

Substantiation: While the valves should be identified in the field, their locations should also be provided at the riser. Similar to other devices and appliances that may be within a building, they can become hidden or obstructed from view over time.
Committee Meeting Action: Accept in Principle
Revised 4.1.7 to read as follows:
4.1.7 Valve Location. The location of shutoff valves shall be identified at the system riser or other approved locations.
Committee Statement: Editorial/MOS change to locate the requirement in 4.1.7.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-72 Log #31 **Final Action: Reject**
(4.1.8, 4.1.8.1, 4.1.8.2, 4.1.8.3 (New) and A.4.1.8 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise entire section 4.1.8 as follows:
4.1.8* General Information Sign.
A.4.1.8 The general information sign is used to determine the system design basis and information relevant to the inspection, testing, and maintenance requirements of this standard, and is required to be installed on new systems by NFPA 13 *Standard for the Installation of Sprinkler Systems.* System control risers, antifreeze loops, and auxiliary system control valves that don't have a General Information Sign should have a new or replacement sign provided.
4.1.8.1 ~~A permanently marked metal or rigid plastic information sign shall be placed at the system control riser supplying an antifreeze loop, dry system, preaction system, or auxiliary system control valve.~~ A general information sign shall be provided at each system control riser, antifreeze loop, and auxiliary system control valve.

4.1.8.2 ~~Each sign shall be secured with a corrosion-resistant wire, chain, or other approved means and shall indicate at least the following information:~~
~~(1) Location of the area served by the system~~
~~(2) Location of auxiliary drains and low-point drains for dry pipe and preaction systems~~
~~(3) The presence and location of antifreeze or other auxiliary systems~~
~~(4) The presence and location(s) of heat tape~~
The sign shall include the following information:
(1) Name and location of the facility protected
(2) Occupancy classification
(3) Commodity classification
(4) Presence of high-piled and/or rack storage
(5) Maximum height of storage planned
(6) Aisle width planned
(7) Encapsulation of pallet loads
(8) Presence of solid shelving
(9) Flow test data
(10) Presence of flammable/combustible liquids
(11) Presence of hazardous materials
(12) Presence of other special storage
(13) Location of auxiliary drains and low point drains on dry pipe and preaction systems
(14) Original results of main drain flow test
(15) Name of installing contractor or designer
(16) Indication of presence
4.1.8.3 The information in 4.1.8.2 shall be provided on a permanently marked weatherproof metal or rigid plastic sign, secured to the riser, antifreeze loop or auxiliary system control valve with corrosion-resistant wire, chain, or other acceptable means.
Substantiation: The way the current text is written, the Information Sign is only required if there's an antifreeze loop, dry or preaction system, or auxiliary control valve. The name should be changed to match NFPA 13 and the sign should be on every system riser as well as at antifreeze loops and at auxiliary system control valves. The revised and new test provided matches the requirements in NFPA 13. If a sign was not provided when the system was installed even if it wasn't required at the time of installation, or if the sign is missing for any reason, a new sign must be provided. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The information proposed for the signage is already required in the standard. The addition of this sign will add a significant cost for owners of existing properties.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
FLEMING, R.: The general information sign should be mandated, since omission of this type of sign can lead to failures of the system due to freeze-ups, closed sectional valves, etc.
RAY, R.: This proposal should have been accepted in part in principal as follows: a new 4.1.8.3 should be added: "The general information sign required by NFPA 13 shall be replaced if found missing". If the system is installed in accordance with NFPA 13, then this sign should be in place. If it goes missing for some reason, the expense incurred by an owner should be insignificant as the standard requires that as-built drawings and calculations be in the owner's possession - the sign can be recreated based on these records for little to no cost.

25-73 Log #16 **Final Action: Reject**
(4.1.8.1 and A.4.1.8.1)

Submitter: Doug Hohbein, Northcentral Regional Fire Code Development Committee
Recommendation: Add a new 4.1.8.1 and renumber the remaining:
4.1.8.1* Where buildings contain more than a single suppression system components shall be identified in a permanent manner that identifies those appurtenances as part of its associated system.
*A 4.1.8.1 The intent of this section is to have clear signage and system identification of all critical system components where there may be confusion caused by multiple systems in one single structure. As an example, a building with multiple risers must uniquely identify each riser and its associated critical components,(i.e. control valves, fire department connections, main drains, inspectors test valves, etc.) to clearly mark it as independent of any other system in the building. This can also be extended to proper signage of associated control valves and appurtenances on the exterior of the building that serves systems within the building.
Revise to read: 4.1.8.2 A permanently marked metal or rigid plastic information sign shall be placed at system risers and antifreeze loops, dry systems, preaction systems, or auxiliary systems control valves to identify that components role in the overall buildings suppression system.
Substantiation: Large buildings with multiple systems are consistently a problem for responding personnel due to lack of signage and maintenance thereof. In buildings with multiple risers and associated appurtenances (i.e. fire department connections), poor and missing signage leads to significant confusion, response delays, additional loss of business continuity and inconsistent inspection, testing and maintenance between the frequently changing testing companies.
Committee Meeting Action: Reject
Committee Statement: The reference to components is too general. Certain components that are seen as critical are already required to be provided with signage (e.g. control valves 4.1.7).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-74 Log #38 **Final Action: Accept in Principle**
(4.1.9.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise 4.1.9.1 as follows:
4.1.9.1 Where an impairment to a water-based fire protection system occurs or is found during inspection, testing or maintenance activities, the procedures outlined in Chapter 15 of this standard shall be followed, including the attachment of a tag to the impaired system.
Substantiation: Most impairments are discovered while performing inspection, testing, and/or maintenance on the system, and the owner or owner's representative needs to know to follow the procedures in Chapter 15 once an impairment is discovered. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise 4.1.9.1 as follows:
4.1.9.1 Where an impairment to a water-based fire protection system occurs or is ~~found~~ identified during inspection, testing or maintenance activities, the procedures outlined in Chapter 15 of this standard shall be followed, including the attachment of a tag to the impaired system.
Committee Statement: "Identified" is a more appropriate term than "found".
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
ELVOVE, J.: The existing language already addresses a condition that might be noted while performing ITM activities. This change could potentially lead to unintended consequences and as thus such, should not be accepted.
SHEPPARD, J.: Original wording of paragraph is sufficient.
UNDERWOOD, D.: Original is ok.

25-75 Log #100 **Final Action: Accept**
(4.1.9.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise 4.1.9.2 as shown.
4.1.9.2 Where a water-based fire protection system is returned to service following an impairment, the system shall be verified to be working properly by means of an appropriate inspection or test as described in the table "Summary of Component Replacement Action Requirements" in the applicable chapter of this document.
Substantiation: This change directs the property owner or designated representative to the proper tables for the required action to verifying that an impairment was corrected properly. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-76 Log #271 **Final Action: Reject**
(4.1.10)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Insert a new section 4.1.10 as follows:
4.1.10 Additive Injection Systems. The building owner shall be responsible for maintaining any additive injection systems including anti-microbial and corrosion inhibitor fluids.
Substantiation: The maintenance of fluid injection systems is beyond the knowledge and scope of inspectors and testers of fire protection equipment. Such equipment is generally used to deal with water supply issues and the owner will need to research and comply with any specific requirements for keeping this equipment functional.
Committee Meeting Action: Reject
Committee Statement: This subject is already covered by 4.1.1.1. The submitter is encouraged to provide specific maintenance criteria for these systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
FLEMING, R.: Injection systems are not listed and must be maintained by owners. NFPA 13 will now be requiring that the fluid added by these devices be listed. Since NFPA 25 does not address the features of these systems or the means to addresses their maintenance, this should be flagged as an owner responsibility.

MYERS, T.: There is an ever increasing number of additives for fire sprinkler systems being offered the public by various companies that are injected with no formal UL listing or instructions. In many of these cases the fire sprinkler contractor was not involved and has no idea how to inspect or what to inspect for.

RAY, R.: This proposal should have been accepted. These injection systems are causing more and more problems with fire sprinkler systems. Case in point is the new disclaimers placed on the cut sheet of a certain manufacturer's corrosion inhibitor regarding the use of the product on "combination systems" (i.e systems containing both steel and CPVC piping). This product had NO such disclaimers since its release sometime prior to 2008, yet the disclaimer now suddenly appears on the cut sheets and requires written permission from the manufacturer prior to its use. Also, there have been incidences of responding fire fighters being affected negatively by the discharge of water and these chemicals when responding to a fire. Too often, after a system is approved and installed and the building occupied, a third party "sells" an owner on installing one of these injection systems - sometimes for good reasons, sometimes not. These systems need to be maintained. Too often, many committee members want to leave an issue "gray" by rejecting proposals and claiming "its already implied in the standard" - but when it comes to contractor liability, they want that in "black & white". These injection systems are becoming more commonplace and the standard needs to be clear that they need to be maintained by the owner.

Comment on Affirmative:

FELD, J.: I agree with the Committee's action to reject the proposal because the ITM requirements for injection systems should be handled by the contractor. Most owners do not possess the skills to conduct a proper ITM of this equipment. The owner has the option to have a separate contractor conduct ITM procedures of injection systems. The contractor may choose to exclude such systems in the contract. If the proposal is accepted as written, some owners may not even know that there is a requirement to inspect these systems, or will assume the contractor is inspecting it, or will ignore the requirement. In either case the system is at risk of premature failure.

25-77 Log #CP16 **Final Action: Accept**
(4.2)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Change the title to section 4.2 as follows:
4.2 Manufacturer's Corrective Action
Substantiation: The proposed change better describes the content of this section. This change also avoids the user having confusion with section 4.1.4 Corrections and Repairs.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-78 Log #321 **Final Action: Accept in Principle**
(4.3.1.1 (New))

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Add new text to read as follows:
4.3.1* Records shall be made for all inspections, tests, and maintenance of the system and its components and shall be made available to the authority having jurisdiction upon request.
4.3.1.1 Records may be electronic.
Substantiation: A number of inspection programs that are on the market today provide for electronic records. These records are still accessible to AHJ's upon request.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
4.3.1* Records shall be made for all inspections, tests, and maintenance of the system and its components and shall be made available to the authority having jurisdiction upon request.
4.3.1.1* Records ~~may~~ shall be permitted to be stored and accessed electronically.
Remove the second paragraph of 2011 Ed A.4.3.1 and insert as new A.4.3.1.1.
A.4.3.1.1Computer programs that file inspection and test results should provide a means of comparing current and past results and should indicate the need for corrective maintenance or further testing.
Committee Statement: Editorial corrections to eliminate the word "may". Existing annex language is being relocated as it fits better with the new language provided in 4.3.1.1.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-79 Log #234 **Final Action: Accept**
(4.3.2)

Submitter: Top Myers, Myers Risk Services
Recommendation: Revise text to read as follows:
4.3.2 Records shall indicate:
(1) The procedure/activity performed (e.g., inspection, test, or maintenance)
(2) The organization that performed the ~~work~~ activity
(3) The required frequency of the activity
(4) The results and date of the activity
(5) The name and contact information of the qualified contractor or owner including lead person for activity.
Substantiation: This language is offered to clarify intent of record keeping by committee. We have seen many situations where various AHJ's or Joint Commission inspectors misunderstands the intent of standard and ask for information that is not required.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-80 Log #23 **Final Action: Accept in Principle**
(4.3.4.1 (New))

Submitter: Frank Monikowski, SimplexGrinnell
Recommendation: Add new section and text as follows:
4.3.4.1 If records required by 4.3.4 are not available on site, and there is no hydraulic placard present, a system evaluation must be performed, and a new hydraulic placard provided and hung on the sprinkler riser.
Substantiation: Having a requirement such as 4.3.4 without having a solution serves little purpose. The importance of knowing how the system is designed is extremely important. Even though an inspection does not require evaluating occupancies and systems, this data when observed can be useful to multiple parties. SFPE magazine's Q4, 2010 publication cites ineffective performance of sprinkler systems 18% of the time is attributed to inappropriate design for the occupancy.

This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-42 (Log #154).
Committee Statement: See Committee Statement on Proposal 25-42 (Log #154).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
ELVOVE, J.: See my negative comment on ROP 25-42.
LARRIMER, P.: See my Explanation of Negative Vote on Proposal 25-42.
UNDERWOOD, D.: See comments on 25-42.

25-81 Log #39 **Final Action: Reject**
(4.3.6 (New))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Add an additional requirement in Chapter 4 as follows:
4.3.6 The property owner or owners representative shall have a current copy of NFPA 25 on site for review by the authority having jurisdiction.
Substantiation: A copy of the current code would allow ready access to the standard for AHJ, the owner or owner's representative for reviewing or clarification. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: NFPA 13, Standard for the Installation of Sprinkler Systems, already requires a copy of NFPA 25 to be left at the property upon completion. The "current copy" may not necessarily be the version used for the property. This is an unnecessary burden on the owner and the AHJ has access to the standard. The standard is available online.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
DRYSDALE, M.: It is not practical to suggest that the slope of sprinkler piping can be determined within ¼" to ½" over a 10' run of pipe by observations from the ground. No evidence was presented that the existing approach of providing drains, where needed, should be replaced with greater attention to pipe pitch.

25-82 Log #291 **Final Action: Reject**
(4.3.6 (New))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Insert a new section 4.3.6 as follows:
4.3.6 If there are no records indicating any previous inspection, testing or maintenance procedures on a system that is five years old or more, then the inspection, testing, and maintenance requirements for every five years (and more frequent) shall be conducted and the results maintained by the owner to establish a new baseline of information for future procedures.
Substantiation: A standardized policy has to be established for what to do with systems where there has been no maintenance of records. Also, building owners need to be discouraged from "shopping" around their inspection, testing and maintenance by hiring a new contractor every 3 or 4 years and not getting to the more serious, less frequent, procedures.
Committee Meeting Action: Reject

Committee Statement: As currently proposed, if the owner possesses a single annual test report, there is no mechanism to trigger the 5 year interval test. The submitter is encouraged to address record keeping for intervals that are less than 5 years.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
FLEMING, R.: It is common sense to require the 5-year test if there are no records of how long it has been since the 5-year tests were conducted. Without this requirement, owners would be encouraged to continually switch inspection firms, and never hit the 5-year interval.
OSBURN, M.: I agree with the proponent, there are instances where the five year inspection, test and maintenance requirements are not being conducted due to improper record keeping. This proposed language would ensure that the five year inspection, test and maintenance requirements will be conducted regardless if the building owner has proper record keeping of previous inspections.
RAY, R.: This proposal should have been accepted to require whatever inspection activities should have been performed on a system (based on its age) when no records of inspection & testing exist for that system. Example: if the system is 3 years old, then the "first" inspection should include all activities required up to & through the 3 year inspection & testing requirements.

25-83 Log #298 **Final Action: Accept in Principle**
(4.5.4)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
4.5.4 During testing ~~and maintenance~~, water supplies, including fire pumps, shall remain in service unless under constant attendance by qualified personnel or unless impairment procedures in Chapter 15 are followed.
Substantiation: Section 4.5 is for testing and not maintenance therefore maintenance should not be referenced within subsections thereof.
Committee Meeting Action: Accept in Principle
Relocate to 4.4 and renumber subsequent sections:
4.5.4 During inspection, testing and maintenance, water supplies, including fire pumps, shall remain in service unless under constant attendance by qualified personnel or unless impairment procedures in Chapter 15 are followed.
Committee Statement: The proposed language was intended to apply to all inspection, testing and maintenance tasks and therefore needs to be moved to 4.4.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-84 Log #101 **Final Action: Accept in Principle**
(4.5.6)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise 4.5.6 as shown.
4.5.6* When a major component or subsystem is rebuilt or replaced, the subsystem shall be tested in accordance with the original acceptance test required for that subsystem as described in the table "Summary of Component Replacement Action Requirements" in the applicable chapter of this document.
Substantiation: This change directs the property owner or designated representative to the proper tables for the required action to verifying that a major component or subsystem was rebuilt or replaced properly. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-85 (Log #155).
Committee Statement: See Committee Statement on Proposal 25-85 (Log #155).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-85 Log #155 **Final Action: Accept**
(4.5.6 and A.4.5.6)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise text to read as follows:
4.5.6* When a ~~major~~ component or subsystem is ~~rebuilt~~ adjusted, repaired, reconditioned, or replaced, ~~the subsystem~~ it shall be tested in accordance with the original acceptance test required for that subsystem or the requirements where specified by the standard.
A.4.5.6 Examples of subsystems or components ~~are~~ include fire pumps, drivers or controllers, pressure regulating devices, detection systems and controls, alarm check, ~~and~~ dry pipe, deluge, and preaction valves. The required tests for components are contained in the corresponding chapter in tables titled *Summary of Component Replacement Action Requirements.*
Substantiation: Section 4.5.6 is not correlated with the summary component action tables found in each chapter. The proposed language is consistent with the requirements as found in the standard and better clarifies the intent of the section.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-86 Log #264 **Final Action: Reject**
(4.5.8)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Insert a new 4.5.8 regarding testing as follows:
"4.5.8 The property owner or designated representative shall keep the demand (flow and pressure) of the fire protection system(s) on file and shall make the demand(s) known to the personnel performing tests where the pass/fail criteria of the test will depend on the system demand(s). If the demand(s) are unavailable, then the pass/fail criteria for tests shall be based on the data from previously performed tests. If the demand(s) are unavailable and there is no data from previously performed tests, then the current test data shall be retained as a new base-line."
Substantiation: In previous cycles of the standard, the committee has attempted to deal with the problem of knowing demand data for pass/fail criteria on tests by putting "as provided by the owner" after each time that the system demand appears in testing criteria. But that has not been consistently done throughout the standard. It would seem appropriate to make sure that the owner understands that they need to keep this information and share it with the contractors performing various tests. Putting this requirement in the Owner's portion of Chapter 4 will help the owner understand their role.
Recognizing that all owners have not kept this information, options have been provided so that the owner will still be able to comply with NFPA 25 in the future.
Committee Meeting Action: Reject
Committee Statement: This proposed language would be redundant as it is addressed in 4.3.4 and proposal 25-42 (Log #154). The concept of establishing a new baseline is not clearly defined.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been accepted. In many locations, NFPA 25 requires that the results of a test activity be compared to the "system demand". If this information is unknown, how can the inspecting company adequately perform their duties on behalf of the building owner? What is the point of performing certain testing activities if all the contractor can do after the test is hand the owner the results and tell them "here's your test results, but we have no idea how these results relate to your system"?

25-87 Log #156 **Final Action: Accept**
(4.6)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise as follows:
4.6 Performance-Based Programs. As an alternative means of compliance and where approved by ~~subject to~~ the authority having jurisdiction, components and systems shall be permitted to be inspected, tested, and maintained under a performance-based program.
Substantiation: The current wording inadvertently left out the word "approved".
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-88 Log #24 **Final Action: Reject**
(4.7)

Submitter: Frank Monikowski, SimplexGrinnell
Recommendation: Revise existing 4.7 as follows:
Maintenance and Repairs. Maintenance shall be performed to keep the system equipment operable ~~or to make repairs.~~ and to promptly make repairs as needed.
Substantiation: The current wording seems to be lacking in regards to making necessary repairs to the system. The new wording should be more enforceable.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: "Promptly" is not an enforceable term. Repair is already addressed in the definition of "maintenance" (3.3.20).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-89 Log #157 **Final Action: Reject**
(4.7)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise text as follows:
4.7 Maintenance. Maintenance shall be performed ~~to keep the system equipment operable or to make repairs~~ as required by the manufacturer or as specified by the appropriate chapters.
Substantiation: The current text is simply a repeat of the definition from chapter 3. 4.4 Inspection and 4.5 Testing provide direction to the owner. The revised wording is in line with that provided in 4.4 and 4.5.
Committee Meeting Action: Reject

Committee Statement: This concept is already addressed in 4.1.1.1.1.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-90 Log #296 **Final Action: Accept in Principle**
(Table 5.1.1.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
1. Modify the following entry in two locations (one under Inspection and one under Test)
Valve supervisory ~~alarm~~ devices
2. Correct the reference for the Inspection of the information sign from 5.2.6.1 to 5.2.8
3. Add an Item under inspection for Heat Trace at a frequency per manufacturers requirements and reference to 5.2.7.
4. Add an Item under Test for Valves (all types) [similar to what is under Inspection] with reference to Table 13.1
5. Add an Item under Test for the 5 Year test of sprinkler in harsh environments with reference to 5.3.1.1.2.
6. Change the Item under Test for Sprinklers –extra-high temperature to be named Sprinklers – extra-high or greater temperature solder type
Substantiation: 1. Valve tamper switches are supervisory devices and not alarm. The deletion makes the term technically correct.
2. Editorial correction.
3. Needed for complete coverage of all items in text.
4. Needed for consistent coverage of valves under both Inspection and Testing.
5. Needed for complete coverage of all items in text.
6. Better matches section text.
Committee Meeting Action: Accept in Principle
Replace the word alarm with the word signal and accept the remainder of the proposal
Committee Statement: The term signal is more all encompassing and consistent with the language used in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-91 Log #127 **Final Action: Reject**
(5.1.1.3 (New))

Submitter: Tom Scholtens, City of Charleston / Rep. NFPA Building Code Development Committee (BCDC)
Recommendation: Add new text to read as follows:
5.1.1.3 Reporting Requirements. Reports of inspections and tests that show a lack of maintenance or function in water based fire protection systems remaining unaddressed or unacceptable to the inspector shall be forwarded to the AHJ after 30 days from the date of initial inspection.
Substantiation: Note: This proposal was developed by the proponent as a member of NFPA's Building Code Development Committee (BCDC) with the committee's endorsement.
Many times a fire protection company performs an inspection and determines a deficiency that remains unaddressed or not repaired due to a lack of concern from the building tenant or owner. There is no way for the AHJ to take action unless these issues come to their attention. The failure to address system deficiencies may lead to a loss of life or property during a fire. It presents an unaccountable and unnecessary risk to firefighters.
Notification of the deficiency made to the AHJ would serve two purposes:
1. The AHJ could order the correction of the deficiency thus restoring the system to an acceptable service level.
2. The AHJ could note the deficiency and not expect the water based fire system to respond appropriately during a fire emergency. This reaction to the deficiency would allow the AHJ to protect assets from unexpected hazards.
Committee Meeting Action: Reject
Committee Statement: This is a Building/Fire code issue. The standard should not dictate how local AHJ's operate or enforce the adopted codes or standards
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-92 Log #322 **Final Action: Accept in Principle**
(5.1.5)

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Revise text to read as follows:
5.1.5 Notification to Supervisory Service. To avoid false alarms where a supervisory service is provided, the supervising station ~~alarm receiving facility~~ shall be notified by the property owner or designated representative as follows:
Substantiation: NFPA 72® does not define "alarm receiving facility." It does define a "supervising station."
Committee Meeting Action: Accept in Principle
Change the title of 5.1.5 Notification to ~~Supervisory Service~~ Alarm Receiving Facility and do not accept the proposed change to the section language.
Committee Statement: The NFPA 25 definition is more inclusive and intended to include public fire service as described in A.3.3.1.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-93 Log #60 **Final Action: Accept in Principle in Part**
(5.2.1.1.x (New))

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Add new text to read as follows:
5.2.1.1.X Any Flush type. Recessed, or concealed sprinkler that is missing or not installed with the correct escutcheon or cover plate shall have the Listed associated escutcheon or cover plate assembly installed.
Substantiation: The use of the wrong type of escutcheon with recessed or flush sprinklers or the wrong cover plate can result in the severe disruption of the spray pattern as well as affect the thermal sensitivity of the sprinkler.
Committee Meeting Action: Accept in Principle in Part
Committee Statement: See TG action on Proposal 25-100 (Log #272).
It is not always possible or practical to determine if the correct escutcheon is installed from the floor level.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: It is not clear as to what part of this proposal is being accepted. I assume that the only text intended to be included in the standard is described in the TC action on Proposal 25-100.
RAY, R.: See my comment on 25-100 (Log #272).

25-94 Log #102 **Final Action: Reject**
(5.2.1.1.2, 5.2.1.1.3, 5.2.1.1.3.1, A.5.2.1.1.2(2), and A.5.2.1.1.2(5))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise the existing text as shown, add new text with annex explanatory material, and renumber subsequent sections.
5.2.1.1.2 Any sprinkler that shows signs of any of the following shall be replaced:
(1) Leakage
(2) * Significant ~~C~~corrosion
(3) Physical damage
(4) Loss of fluid in the glass bulb heat responsive element
(5)* Significant ~~L~~loading
(6) Painting unless painted by the sprinkler manufacturer
5.2.1.1.3 A group of sprinklers that show signs of the following shall be allowed to be tested as described in 5.3.1.1 and left in service until the next annual inspection:
(1) Minor corrosion
(2) *Minor loading
5.2.1.1.3.1 Test procedures shall be repeated every year if sprinklers are not replaced.
A.5.2.1.1.2 (2) Significant corrosion on a sprinkler is any corrosion found around the seat, or a buildup of corrosion on the deflector that could affect the spray pattern, or a buildup on the link and lever arms that could affect the operation. Minor corrosion would include a light coating on the boss and/or frame arms, and/or the deflector that may not affect the operation or spray distribution pattern.
A.5.2.1.1.2 (5) Significant loading includes a buildup of oily dust or any other airborne particles, or spackle, tape, plastic, or any other material that accumulates on or is attached to a sprinkler that will affect the operation or spray distribution of the sprinkler. Minor loading would be a very light coating of airborne particles only.
A.5.2.1.1.~~2(5)~~ 3(2) In lieu of ~~replacing~~ testing sprinklers that are loaded with a minor coating of dry dust, it is permitted to clean sprinklers with compressed air or by a vacuum provided that the equipment does not touch the sprinkler.
Substantiation: This section needed to be clarified to allow for lightly loaded or corroded sprinkler to be tested rather than replaced. Descriptions were added to differentiate between sprinklers that could still remain in use by testing or cleaning and those that should be automatically replaced. Explanatory material is added to the annex to explain these differentiations. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: Terms like "significant" and "minor" are unenforceable.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-95 Log #306 **Final Action: Reject**
(5.2.1.1.2(2) and A.5.2.1.1.2(2) (New))

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Add new text to read as follows:
5.2.1.1.2
(2) *Corrosion
A.5.2.1.1.2 (2) Surface discoloration and light surface corrosion not impacting the operating elements of the sprinkler should not warrant the replacement of sprinklers. A degree of judgment should be exercised in the determination of the extent of corrosion that would necessitate replacement.
Substantiation: As written the provisions of 5.2.1.1.2 are being applied to require the replacement of sprinkler when any surface corrosion or

discoloration exists. AHJ have cited that the Section does not provide for any judgment in its application. The additional Annex material provides for such judgment in the application of the section.
Committee Meeting Action: Reject
Committee Statement: Subjective language. Guidance is provided in section A.5.2.1.1.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
ELVOVE, J.: Concur with Mr. Leavitt.
LEAVITT, R.: This proposal (or something similar) needs to be included in the annex. Guidance regarding corrosion is sorely needed in addition to that provided in A.5.2.1.1. Requiring a "sample" test every year is not a practical solution for all situations.

25-96 Log #74 **Final Action: Accept in Principle**
(5.2.1.1.3)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Change text to read:
5.2.1.1.3* Any sprinkler that has been installed in the incorrect orientation shall be ~~replaced.~~ corrected by repositioning the branch line, drop, sprig, or be replaced.
Substantiation: It is possible to correct a problem with a sprinklers orientation without having to replace the sprinkler. A qualified person should be able to make the determination on the most economical remedy for an improperly installed sprinkler while still observing all installation standards.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise 5.2.1.1.3* to read:
Any sprinkler that has been installed in the incorrect orientation shall be corrected by repositioning the branchline, drop, sprig or shall be replaced.
Committee Statement: Editorial.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-97 Log #75 **Final Action: Accept**
(5.2.1.1.4)

Submitter: John T. Johnson, Tyco Fire Protection Products
Recommendation: Remove section 5.2.1.1.4.
~~Any sprinkler shall be replaced that has signs of leakage; is painted, other than by the sprinkler manufacturer, corroded, damaged, or loaded; or is in the improper orientation.~~
Substantiation: Information in section 5.2.1.1.4 is also included in section 5.2.1.1.2. There is not an asterisk after the word loaded, it appears the intention was to delete section 5.2.1.1.4 in the 2011 Edition.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-98 Log #159 **Final Action: Accept**
(5.2.1.1.4 and 5.2.1.1.5)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Delete the following:
~~5.2.1.1.4 Any sprinkler shall be replaced that has signs of leakage; is painted, other than by the sprinkler manufacturer, corroded, damaged, or loaded; or is in the improper orientation.~~
~~5.2.1.1.5 Glass bulb sprinklers shall be replaced if the bulbs have emptied.~~
Substantiation: 5.2.1.1.4 and 5.2.1.1.5 are redundant. 5.2.1.1.2 contains the same requirements for replacing sprinklers.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-99 Log #76 **Final Action: Accept**
(5.2.1.1.5)

Submitter: John T. Johnson, Tyco Fire Protection Products
Recommendation: Remove section 5.2.1.1.5.
~~Glass bulb sprinklers shall be replaced if the bulbs have emptied~~.
Substantiation: Information contained within section 5.2.1.1.5 is also found in section 5.2.1.1.2. and appears to be duplicated.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-100 Log #272 **Final Action: Accept in Principle**
(5.2.1.1.8 and 5.2.1.1.9 (New))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add a new couple of sections as follows:
5.2.1.1.8 Escutcheons and cover plates for recessed, flush and concealed sprinklers shall be replaced if found missing during the inspection.
5.2.1.1.9 Escutcheons for pendent sprinklers that are not recessed, flush or concealed shall not be required to be replaced if found missing during the inspection.
Substantiation: The standard has never addressed the issue of how to deal with missing escutcheons and cover plates. Some escutcheons and cover plates are merely decorative while others serve a function in the operation of the sprinkler.
NFPA 13 (section 6.2.7) considers the escutcheons and cover plates on recessed, flush and concealed sprinklers to be a part of the sprinkler assembly, which means that they need to be replaced if they are missing. This is no different than discovering a sprinkler with a missing deflector. It would need to be replaced if the inspection revealed a missing part of the sprinkler.
Committee Meeting Action: Accept in Principle
Revise submitter's 5.2.1.1.8 to read as follows:
5.2.1.1.8 Missing escutcheons ~~and cover plates~~ for recessed and flush ~~concealed~~ sprinklers shall be replaced ~~if found during the inspection~~.
Add new annex section A.5.2.1.1.8 to read:
A.5.2.1.1.8 Cover plates and some escutcheons are merely decorative while others serve a function in the operation of the sprinkler. Escutcheons for pendent sprinklers that are not a part of a listed sprinkler assembly ~~such as flush, recessed or concealed type sprinklers~~ are not required to be replaced when found missing during an inspection.
Do not accept 5.2.1.1.9.
Committee Statement: Cover plates were moved to the annex as they are strictly decorative components of the sprinkler.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
FLEMING, R.: Loss of a cover plate on a concealed sprinkler may not simply be an aesthetic problem, but may indicate ceiling sag of related problem of sprinkler positioning.
RAY, R.: This proposal should have been accepted. The cover plate for a concealed sprinkler is a part of that sprinkler head's listing and thus need to be replaced when found missing (the same way that those for recessed and flush sprinklers were addressed by the committee). Also, the outer ring of a recessed sprinkler head and the cover plate assembly of a concealed sprinkler head are of a specific dimension to insure that the sprinkler deflector is at the proper distance below the ceiling. The missing trim may be due to the ceiling sagging thus affecting the spray distribution of the sprinkler.

25-101 Log #256 **Final Action: Reject**
(5.2.1.1.8 and A.5.2.1.1.8)

Submitter: Joshua Elvove, U.S. General Services Administration
Recommendation: Add new 5.2.1.1.8 as follows:
5.2.1.1.8* Areas of a building lacking sprinkler protection shall be identified.
A.5.2.1.1.8 The lack of a sprinkler in a room may not necessarily indicate a problem with the sprinkler system as designed, as NFPA 13 has unique spacing requirements and also exempts requirements for sprinklers in certain situations. However, an owner or designated representative, once advised that a sprinkler is observed to be missing, should conduct a subsequent evaluation to determine whether sprinklers are required in those areas where noted to be missing
Substantiation: The committee initially unanimously approved a similar proposal last cycle, then rejected this during the comment period. There is no special experience required to identify an area in a building where sprinklers are missing nor is the "inspector" being asked to indicate whether a missing sprinkler is necessarily a deficiency. Therefore, this should be noted as part of ITM. The annex note has been added to clarify that the mere fact that a sprinkler is missing is not necessarily a deficiency. As an owner, I would want to be informed of this so I could take decide whether subsequent any action is necessary. If the committee continues to reject this idea, it's condoning the possibility of a system failing during a fire, even if it meets every other requirement in NFPA 25.
Committee Meeting Action: Reject
Committee Statement: This could be interpreted as validating the design is outside of the scope standard. Chapter 4 currently covers this for modifications and changes in use.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 29 Negative: 4
Explanation of Negative:
ELVOVE, J.: The committee statement is clearly incorrect, given the scope of NFPA 25 says nothing about the document not addressing design and the continued existence of sections 4.1.5 and 4.1.6 (paragraph 1.1.3.1only states that it's not the "inspector's" responsibility to verify the system design). If a sprinkler is not installed where it's supposed to be, or worse, it's been removed for some reason, how can this condition not be noted by an "inspector" when this condition could lead to the complete failure of a sprinkler system. The

language proposed in the body of the standard was very benign as all it asked was for an inspector to identify areas in a building lacking sprinkler protection. The additional annex material made it clear that areas where sprinklers were noted to be missing were not necessarily deficiencies. To me, it's downright egregious that this committee will permit this condition to go unreported on an ITM report.

FELD, J.: The submitter is correct that missing sprinklers need to be identified. The proposal needs to go further in requiring the owner to evaluate the missing sprinkler and be REQUIED to remedy the deficiency if the room/area was or is required to be protected.
If an inspecting contractor cannot determine if a sprinkler is missing from a room, then he/she needs to find another job.

LARRIMER, P.: The reason for rejection identified in the committee statement is addressed by the proposed annex note. The proposal would help ensure that missing sprinklers are identified without holding the inspector responsible for any design issues.

SAIDI, J.: Identifying an area in a building with missing sprinkler protection is simple, easy to do and does not require a great deal of expertise, it is simply an observation by the service provider which could be useful to the owner. As an owner, I would want to be informed so I can follow-up with this observation. The proposal should be accepted, at least in principle.
Owners, would want to know if there are areas lacking protection in their property and decide whether further action is necessary.

25-102 Log #240 **Final Action: Reject**
(5.2.1.2 and 5.2.1.3 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise sections 5.2.1.2 and 5.2.1.3 and move part of annex material in A.5.2.1.2 to the main body as shown.
5.2.1.2* The minimum clearance ~~required by the installation standard~~ as described in 5.2.1.2.1 through 5.2.1.2.3 shall be maintained below all sprinkler deflectors.
5.2.1.2.1 Stock, furnishings and equipment shall be no closer than 18 in. (457 mm) to standard spray and residential sprinklers.
5.2.1.2.2 Stock, furnishings and equipment shall be no closer than 36 in. (914 mm) to all other types of sprinklers such as early suppression fast-response (ESFR) and large drop sprinklers.
5.2.1.2.3 Stock, furnishings and equipment against walls shall be permitted to ignore the minimum clearance rules in 5.2.1.2.1 and 5.2.1.2.2 as long as the sprinkler is not directly above the object.
5.2.1.3 Stock, furnishings, or equipment closer to the sprinkler deflector than permitted by the clearance rules ~~of the installation standard~~ as described in 5.2.1.2.1 through 5.2.1.2.3 shall be corrected.
Substantiation: Inspectors should not have to know the minimum clearances required by the installation standard, because those rules change over time and it's unreasonable to ask the inspector to know which ones applied when. There are some basic clearance rules in NFPA 13 and the ones that can be inspected to should be in NFPA 25. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: There are 3 potential coordination issues with NFPA 13:
1)The 18 and 36 in rules needs to address planes below the deflector.
2)NFPA 13 doesn't address furnishings and equipment
3)NFPA 13 Addresses "clearance to storage" as opposed to "clearance"
The submitter is encouraged to resubmit after coordinating language with NFPA 13, Standard for the Installation of Sprinkler Systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-103 Log #239 **Final Action: Reject**
(5.2.1.4, 5.2.1.5, A.5.2.1.4, and A.5.2.1.5 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add a new sections 5.2.1.4 and 5.2.1.5 and the annex material to go with them as shown, and renumber the subsequent sections accordingly.

5.2.1.4* Sprinkler spray patterns shall not be obstructed by temporary or non-permanent obstructions such as signs, banners, or decorations.
A.5.2.1.4 While it is impractical for an inspector to know all of the various obstruction rules for all the different types of sprinklers, the inspector can observe when temporary or non-permanent obstructions have been installed that could block or obstruct a sprinkler's spray pattern.
5.2.1.4.1 Temporary or non-permanent obstructions that appear to be obstructions to sprinkler spray patterns shall be removed or repositioned so they are not an obstruction.
5.2.1.5* Sprinklers shall not be required to be inspected to determine if they comply with installation obstruction rules that apply to structural or architectural features.
A.5.2.1.5 It is impractical for an inspector to know all of the various obstruction rules for all the different types of sprinklers based on the installation standards, especially when those obstruction rules have changed from edition to edition. It has to be assumed that when the system was installed all of the obstruction rules were followed. However, if it's obvious that a structural member or an architectural feature was added since the original installation that may be obstructing a sprinkler, the inspector can bring it to the owner or designated representative's attention in the form of a recommendation for an evaluation.
Substantiation: Obstructions are one of those gray areas that all inspectors have to deal with. The current language in the standard isn't much help, and little guidance is given. Obvious temporary obstructions should be recorded as a deficiency. However, the questionable ones should not be the inspector's responsibility to try to figure out. Just like many of the other assumptions that are made by this standard, and by extension the inspector, it needs to be stated that checking structural and architectural features as possible obstructions is not required. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The proposed language creates correlation issues with NFPA 13, Standard for the Installation of Sprinkler Systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:

ELVOVE, J.: Obstructions should be noted by the inspector as these clearly impact the performance of the sprinkler system as designed. Then, we can focus on including a number of other "grey areas" that impact performance which also should be included as part of ITM activities (e.g., missing sprinklers, missing hangers, etc.)

RAY, R.: This proposal should have been accepted. NFPA 13 has been very clear for many years regarding obstructions (whether temporary or permanent). This proposal would have given clear direction to building owners regarding the placement of signs, banners, etc. that are installed following the system installation and hence perhaps not addressed in the original system layout and initial occupancy inspections performed by AHJs. Do we want an owner to be allowed to place signs and banners that would defeat a sprinkler head's performance 15 minutes after they receive their initial certificate of occupancy? I would hope not, yet the committee's action seems to indicate that this WOULD be acceptable.

25-104 Log #131 **Final Action: Accept in Principle**
(5.2.1.4(3) (New))

Submitter: Elwin G. Joyce, II, Eastern Kentucky University
Recommendation: Add New Subsection:

5.2.1.4(3) Confirm that none of the sprinklers have been recalled or had their listings voided.

Substantiation: Due to the number of sprinklers that have been recalled or no longer listed (such as O-ring types) the inspector who is a representative of the owner needs to inform the owner that the problem exists. Even though the time table for assisted replacement has passed the owners need to know that they may have sprinklers that could fail to operate. At the moment I believe there are at least 18 or more sprinklers models that have been recalled or no longer to be used in the last 15 or more years. Some type of flag needs to be in place to at least to cover the issue to make owners aware of the problem.
Committee Meeting Action: Accept in Principle
In lieu of the proposed language, add a new 5.2.1.6:
5.2.1.6 Any sprinkler(s) observed to be a part of a recall program, including those in the spare sprinkler cabinet, shall be recorded.
Committee Statement: The alternate language expands the scope of the submitter's proposal.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:

FANTAUZZI, J.: The requirement of NFPA 25 to identify recalled material should be a function between the individual manufacturer and the owner of the recalled material and should not be the liability of the ITM inspector. Article 4.1.4 and A4.1.4 is sufficient and the addition of 5.2.1.6 is not necessary.

FLEMING, R.: The word "observed" is too general, since it could be considered part of a distant visual observation of a recalled sprinkler, introducing an impractical obligation on the inspector. The intent is adequately covered within the current annex section.

LEAVITT, R.: This new language can be interpreted that "recalled" sprinklers are a part of the inspection scope. I do not believe any recalled products should be a part of NFPA 25 inspection scope as there are specific enforcement procedures set forth in any (not just fire systems) recall effort.

25-105 Log #327 **Final Action: Reject**
(5.2.1.8 and A.5.2.1.8)

Submitter: Peter A. Larrimer, US Department of Veterans Affairs
Recommendation: Add 5.2.1.8 and A.5.2.1.8 to read as follows:
5.2.1.8 Obvious obstructions to sprinkler spray patterns or missing sprinklers based upon the as-built drawings provided by the owner shall be identified.
A.5.2.1.8 Obstructions to spray patterns include horizontal obstructions near the ceiling, vertical obstructions, suspended or floor-mounted obstructions, and clearances between sprinklers and storage below. As-built drawings as identified in Section 4.3.4 should be used to establish those locations where sprinklers were obviously intended by design. Where as-built drawings are not available, the inspector may not be able to determine where sprinklers are

missing or obstructed and this should be noted on the report.
Substantiation: Once the owner provides as-built drawings, there is no reason why obvious sprinkler installation errors that do not conform to the as-built drawings cannot be identified. Design data is required from the owner to test the pump relative to the system demand (See 8.3.5.7) so there is no reason why the same type of design information cannot be supplied to ensure that the sprinklers that can be seen from the floor are in a good position. If the design drawings show a room that is supposed to be sprinklered and there are no sprinklers in the room, this will allow the inspection to make that information available so that the lack of protection can be resolved.

The sprinkler industry is going to great lengths to remove all liability with respect to ITM and this is an attempt to allow the industry to provide a true service without being held liable for anything more that what is on the as-built drawings provided by the owner. If we are interested in ensuring sprinklers work then one easy step is making sure that obvious omission are resolved and that the sprinklers are installed where the drawings indicate.
Committee Meeting Action: Reject
Committee Statement: The intent of NFPA 25 is to address wear and tear and not design/installations issues. Identify spacing and obstructions issues is part of the owners responsibility per 4.1.5 and 4.1.6.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:

ELVOVE, J.: The committee statement indicates that the intent of NFPA 25 is to address wear and tear issues and not design/installation issues. If this is the case, why are there requirements in 5.2.1.2 and 5.2.1.3 to note areas where the minimum clearance distance to sprinklers is not maintained? Clearly, the intent of NFPA 25 is to do more than recognize wear and tear issues. So why limit this effort to only clearance issues when other obvious conditions also have the potential to adversely impact the performance of a sprinkler. This proposal rightfully aims to add that "obvious obstructions to sprinkler spray patterns" be included as part of ITM. Regarding identifying missing sprinklers, if as-built drawings are required, why can't an "inspector" compare his/her observations with the drawings to determine whether a sprinkler is required to be present? Also see my negative comment on 25-101.

LARRIMER, P.: There are many design issues that are addressed by this document, in spite of the committee statement. There is no reason that an inspector can't identify obvious obstructions to sprinklers when provided with the as-built drawings. Why can the document ensure the system design is met for pump testing but not for sprinkler placement? See 25-145.

SAIDI, J.: Identifying an area in a building with missing sprinkler protection or obstructed sprinklers is relatively simple, easy to do and does not require a great deal of expertise. These are observations by the service provider which could be useful to the owner. As an owner, I would want to be informed so I can follow-up with this observation and decide whether further action is necessary. The proposal should be accepted, at least in principle.

25-106 Log #305 **Final Action: Reject**
(5.2.2.1 and A.5.2.2.1 (New))

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Add new text to read as follows:

5.2.2.1* Pipe and fittings shall be in good condition and free of mechanical damage, leakage and corrosion.

(2) *Corrosion

A.5.2.2.1 Surface corrosion not impacting the integrity of the piping strength or raising concern of potential leakage should not warrant the replacement of piping. A degree of judgment should be exercised in the determination of the extent of corrosion that would necessitate replacement.
Substantiation: As written the provisions of 5.2.2.1 can be applied to require the replacement of pipe when it is not free of even surface corrosion. AHJ have cited that the Section does not provide for any judgment in its application. The additional Annex material provides for such judgment in the application of the section.
Committee Meeting Action: Reject
Committee Statement: The proposed language is excessively subjective. The intent of the inspection is for observation from the floor level only. The amount of corrosion cannot be determined by visual examination.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:

ELVOVE, J.: See my comment on 25-95.

LEAVITT, R.: This proposal should be accepted. Some guidance in the annex is needed for pipe corrosion since the corrective action for corroded pipe is replacement.

25-107 Log #132 **Final Action: Reject**
(5.2.2.3.1 (New))

Submitter: Elwin G. Joyce, II, Eastern Kentucky University
Recommendation: Add new section:

5.2.2.3.1 Where piping of residential sprinkler systems is installed in unsprinklered accessible attics it shall be inspected annually per section 4.1.1.1 to confirmed that protection against freezing is being properly maintained.
Substantiation: Based on the wording of 5.2.2.3 piping that is installed in attics that are not sprinklered is not being checked to see if freeze protection is maintained. Residential uses such as hotels and motels have renovation work that is done in these spaces that may cause (such as insulation removal) the piping to be exposed to freezing conditions and break flooding the building. With the problems with antifreeze systems this can become an issue as more systems are insulated. This issue is mainly in systems installed per NFPA 13R where the attic is not required to be suppressed as would be per NFPA 13. I know of current legal cases where the inspectors are being sued over not checking the attics and insulation was removed covering the piping by people doing renovation work. This wording should make the matter clearer (also see A4.1.1 - NFPA 25)
Committee Meeting Action: Reject
Committee Statement: The owner is required to provide adequate heat as noted in Section 4.1.1.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-108 Log #98 **Final Action: Accept in Principle**
(5.2.3)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add a new section 5.2.3 as shown and renumber the subsequent sections.

5.2.3* Dry and Preaction System Piping Pitch Check.
5.2.3.1 Dry system piping shall be checked for proper pitch every five years.
5.2.3.2* Preaction system piping installed in areas subject to freezing or where the installation standard requires it to be pitched shall be checked for proper pitch every five years.
5.2.3.3 After frozen pipes and/or fittings are repaired or replaced, all affected piping shall be checked for proper pitch.
5.2.3.4 Dry Pipe and Preaction Systems. Piping shall be pitched to drain as stated in 5.2.3.4.1 through 5.2.3.4.3.
5.2.3.4.1 Dry Pipe Systems in Non-refrigerated Areas. In dry pipe system, branch lines shall be pitched at least 1/2 in. per 10 ft (4 mm/m), and mains shall be pitched at least 1/4 in. per 10 ft (2 mm/m) in non-refrigerated areas.
5.2.3.4.2 Preaction Systems. In preaction systems, branch lines shall be pitched at least 1/2 in. per 10 ft (4 mm/m), and mains shall be pitched at least 1/4 in. per 10 ft (2 mm/m).
5.2.3.4.3 Dry Pipe and Preaction Systems in Refrigerated Areas. Branch lines shall be pitched at least 1/2 in. per 10 ft (4 mm/m), and mains shall be pitched at least 1/2 in. per 10 ft (4 mm/m) in refrigerated areas.
A.5.2.3 Pipes are pitched to provide proper drainage which is especially important in areas subject to freezing to ensure that water isn't accumulating in pipes that could freeze and damage the pipe and fittings or create an ice plug. Most freeze-ups that occur in dry or preaction systems are a result of improperly pitched pipes. Pipes that may have been properly pitched when installed can become improperly pitched because the building settled, or they were pushed out of alignment.
A.5.2.3.2 The requirement for pitching preaction system piping has changed over the years. Prior to the 2007 edition of NFPA 13, preaction system piping installed in heated areas could be installed without any pitch. However, accelerated corrosion was taking place in these pipes so the 2007 edition deleted this allowance.
Substantiation: Many freeze-ups have occurred in dry and preaction systems because water accumulated in the pipes and froze, impairing the systems. In most cases the water accumulated in pipes that were found to be improperly pitched either because the building settled or someone climbing around in an attic grabbed pipes for balance causing them to be become misaligned. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Accept the submitter's proposal as annex material (only) under section A.5.2.2 but do not accept the 5 year inspection interval. All of the proposed language should to be merged into 1 section (A.5.2.2) with the following modifications: 1)Wherever the "5 year" frequency is proposed within the submitters language, revise to read "periodic inspection" for dry pipe and pre-action systems. 2)Shalls become shoulds.

A.5.2.2 Dry system piping should be periodically inspected for proper pitch. Preaction system piping installed in areas subject to freezing or where the installation standard requires it to be pitched should be periodically inspected for proper pitch. After frozen pipes and/or fittings are repaired or replaced, all affected piping should be checked for proper pitch. Piping should be pitched to drain as stated in 5.2.3.4.1 through 5.2.3.4.3.

In dry pipe system, branch lines should be pitched at least 1/2 in. per 10 ft (4 mm/m), and mains should be pitched at least 1/4 in. per 10 ft (2 mm/m) in non-refrigerated areas. In preaction systems, branch lines should be pitched at least 1/2 in. per 10 ft (4 mm/m), and mains should be pitched at least 1/4 in. per 10 ft (2 mm/m). Branch lines should be pitched at least 1/2 in. per 10 ft (4 mm/m), and mains should be pitched at least 1/2 in. per 10 ft (4 mm/m) in refrigerated areas.

Pipes are pitched to provide proper drainage which is especially important in areas subject to freezing to ensure that water isn't accumulating in pipes that could freeze and damage the pipe and fittings or create an ice plug. Most freeze-ups that occur in dry or preaction systems are a result of improperly pitched pipes. Pipes that may have been properly pitched when installed can become improperly pitched because the building settled, or they were pushed out of alignment.

The requirement for pitching preaction system piping has changed over the years. Prior to the 2007 edition of NFPA 13, preaction system piping installed in heated areas could be installed without any pitch. However, accelerated corrosion was taking place in these pipes so the 2007 edition deleted this allowance.

Committee Statement: There is not technical substantiation for the 5 year frequency which lead to the term "periodic" being used instead and the entire section being moved to the annex.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
DRYSDALE, M.: It is not practical to suggest that the slope of sprinkler piping can be determined within ¼" to ½" over a 10' run of pipe by observations from the ground. No evidence was presented that the existing approach of providing drains, where needed, should be replaced with greater attention to pipe pitch.
FANTAUZZI, J.: The physical checking of the pitch of piping presents significant amount of liability and cost to the inspection process. The corrective actions are NFPA 13 requirements and any and all repairs or modifications are the function of NFPA 13.
The addition of this material to NFPA 25, even to the Annex, can only cause a greater liability exposure to the ITM Inspector from a implied warranty point of view.
LEAVITT, R.: Although I understand the concern regarding freezing, the pitch of piping should not be a part of the inspection process and should not be addressed in the annex. This new language regardless of where it is located will cause more issues than it solves. For example, single interlock and non-interlock preaction systems not subject to freezing had no requirement for pitch prior to the 2007 edition of NFPA 13.
Comment on Affirmative:
ELVOVE, J.: Given the committee rejected the proponent's language pertaining to a 5 year inspection frequency, the Final Action of this proposal should have been Accept in Part in Principle. But more importantly, it's not completely clear from the committee meeting action how the proposed text will actually read. Therefore, for the benefit of the public and committee members, it is requested that staff rewrite the proposal as accepted in principle by the committee.

25-109 Log #103 **Final Action: Accept**
(5.2.3.1 and 5.2.3.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise 5.2.3.1 and 5.2.3.2 as follows:
5.2.3.1 Hangers and seismic braces shall not be damaged, ~~or~~ loose, unattached, or with missing components.
5.2.3.2 Hangers and seismic braces that are damaged, ~~or~~ loose, unattached, or with missing components shall be replaced or refastened.
Substantiation: The added conditions are deficiencies as well and should be included. Although most inspectors probably noted hangers or seismic braces that were unattached or with missing components, this standard didn't require them to do so. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
LEAVITT, R.: I agree with the proposal except the addition of "missing component." A missing component moves the inspection into the realm of design and/or installation.

25-110 Log #323 **Final Action: Accept in Principle**
(5.2.4.1)

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Revise text to read as follows:
5.2.4.1* Gauges on wet pipe sprinkler systems shall be inspected quarterly ~~monthly~~ to ensure that they are in good condition and that normal water supply pressure is being maintained.
Substantiation: Most, but not all sprinkler systems are under contract for the inspection requirements of this Standard to be performed. For those that are, a quarterly inspection should suffice. For those that are not, they are most likely not being performed by anyone at any period as specified by this Standard. As this is a minimum standard, for those properties that are having inspections performed by their personnel, they may still elect to perform a monthly inspection.
Committee Meeting Action: Accept in Principle
Accept language and revise table 5.1.1.2 to modify the frequency of gauges from monthly to quarterly.
Committee Statement: In addition to making the proposed change, the TC wanted to make sure the table was updated as well to avoid any inconsistencies.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-111 Log #304 **Final Action: Accept in Principle**
(5.2.4.1 and 5.2.4.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
5.2.4.1* Gauges on wet pipe and deluge sprinkler systems shall be inspected monthly to ensure that they are in good condition and that normal water supply pressure is being maintained.
5.2.4.2 Gauges on dry and; preaction, ~~and deluge~~ systems shall be inspected weekly to ensure that normal air or nitrogen, and water pressures are being maintained.
Substantiation: Deluge system have open nozzles or sprinklers without air pressurization having no need for inspection of air gauges and should be relocated to 5.2.4.1 for monthly inspection of the water gauges to same as wet systems.
Dry and preaction system can include the use of nitrogen as well as air and should be recognized in 5.2.4.2.
Committee Meeting Action: Accept in Principle
1) Revise 5.2.4.1 as follows:
5.2.4.1* Gauges on wet pipe and deluge sprinkler systems shall be inspected ~~monthly~~ quarterly to ensure that they are in good condition and that normal water supply pressure is being maintained.
2) Accept proposed revision to 5.2.4.2.
Committee Statement: Revision to 5.2.4.1 is congruent with TG action on proposal 25-110 (Log #323).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-112 Log #61 **Final Action: Reject**
(5.2.4.2)

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Revise text to read as follows:
5.2.4.2 Gauges on dry, preaction and deluge systems shall be inspected weekly to ensure that ~~normal~~ the specifically designed air and normal water pressures are being maintained in accordance with the original design of the system.
Substantiation: The design of dry, deluge, and preaction systems are often dependent on a specific air pressure in the dry pilot line and or sprinkler piping for the successful operation or trip time as well as delivery time of water to the inspector's test connection. Improper air pressure could result in additional heads to operate and potential for the system to fail.
Committee Meeting Action: Reject
Committee Statement: The proposed term "normal pressure" is synonymous with the term specified or original design pressure.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
ADAMS, C.: Placing definitions that are already in other existing standards is superfluous and could result in conflicts if the installation standard revises the original definition. NFPA 25 is not a stand alone standard and does require the individual performing the ITM to be "qualified" which means they should be familiar with the basic designs and operations of the systems. Definitions should only be added when they are specific to NFPA 25 and not for convenience otherwise every definition should be carried over from the installation standards. This is also applicable to 25-14 (Log #112), 25-17 (Log #113), 25-340 (Log #144), etc.

25-113 Log #303 **Final Action: Accept in Principle**
(5.2.5)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
5.2.5 Waterflow Alarm and Supervisory Devices. Waterflow alarm and supervisory ~~alarm~~ devices shall be inspected quarterly to verify that they are free of physical damage.
Substantiation: These are supervisory and not alarm devices.
Committee Meeting Action: Accept in Principle
Global change to the standard to replace the term "Supervisory Devices" with "Supervisory Signal Initiating Device".
Committee Statement: The modifications are for consistency with the action on 25-92 (Log #322). It should be noted that waterflow was not changed because that is typically an alarm signal.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-114 Log #104 **Final Action: Accept in Principle**
(5.2.6)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise section 5.2.6 and add new sections 5.2.6.1 and 5.2.6.2 as follows:
5.2.6* Hydraulic Design Information Sign. The hydraulic design information sign ~~for hydraulically designed systems~~ shall be inspected quarterly to verify that it is provided, attached securely to the sprinkler riser, and is legible.
5.2.6.1 A hydraulic design information sign that is missing or illegible shall be replaced.
5.2.6.2 A pipe schedule system shall have a hydraulic design information sign that reads "Pipe Schedule System".
5.2.6.3 The property owner or designated representative shall provide the design criteria needed to comply with 5.2.6.1 and 5.2.6.2.
Substantiation: There is always a question about the need for a hydraulic design information sign when none is present on the system riser. The proposed changes make it clear that if a sign isn't present, one needs to be provided, either to replace the one that's missing, or to retrofit a sign if the system is a pipe schedule. When a sign needs to be replaced or added, the owner is to supply the information for the sign based on the records from the original installation, or from the most recent system evaluation. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Delete proposed 5.2.6.3.

Accept the remainder of the proposed language.
Committee Statement: 5.2.6.3 is redundant based on previous committee action.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 29 Negative: 4
Explanation of Negative:
DRYSDALE, M.: Requiring that the design information be available is consistent with NFPA 13 and is reasonable. It should be acceptable to have the information on a hydraulic design information sign on the riser or in available design documents. Over time, information signs can become illegible or lost. The current systems for maintaining electronic data make that option equally secure.
LARRIMER, P.: The hydraulic design information sign has nothing to do with inspection testing and maintenance of a system. It doesn't matter if the system is a pipe schedule system or a hydraulically calculated system with respect to the requirements in NFPA 25. Inspecting for a sign that has nothing to do with the ITM of the system and which will not affect the operation of the system even it if is missing is questionable, yet this new language retroactively requires a missing sign to be replaced or installed, by the owner of course. There is no justification for requiring a sign.
See my negative comment on 25-42.
RAY, R.: This proposal should have been accepted. The proposed 5.2.6.3 (struck by the committee) would have made the standard clear in requiring the owner to provide this information - either from original as built drawings and hydraulic calculations or from a study performed on the system to determine the level of protection that it can provide.
UNDERWOOD, D.: See comments on 25-42.

25-115 Log #17 **Final Action: Reject**
(5.2.6.1 (New))

Submitter: Doug Hohbein, Northcentral Regional Fire Code Development Committee
Recommendation: Add a new section to read:
5.2.6* Hydraulic Design Information Sign. The hydraulic design information sign for hydraulically designed systems shall be inspected quarterly to verify that it is attached securely to the sprinkler riser and is legible.
5.2.6.1 The sign shall verify the current building information:
(1) Name and location of the facility protected
(2) Occupancy classification
(3) Commodity classification
(4) Presence of high-piled and/or rack storage
(5) Maximum height of storage planned
(6) Aisle width planned
(7) Encapsulation of pallet loads
(8) Presence of solid shelving
(9) Flow test data
(10) Presence of flammable/combustible liquids
(11) Presence of hazardous materials
(12) Presence of other special storage
(13) Location of auxiliary drains and low point drains on dry pipe and preaction systems
(14) Original results of main drain flow test
(15) Name of installing contractor or designer
(16) Indication of presence and location of antifreeze or other auxiliary systems. (13:24.6.2)
Substantiation: There is a sign requirement in 13 with the information provided in 5.2.6.1. To ensure that the system is adequate design you would use the sign to verify the design information.
Committee Meeting Action: Reject
Committee Statement: The information proposed for the signage is already required in the standard. The addition of this sign will add a significant cost for owners of existing properties.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been accepted as submitted: a new 4.1.8.3 should be added: If the system is installed in accordance with NFPA 13, then this sign should be in place. If it goes missing for some reason, the expense incurred by an owner should be insignificant as the standard requires that as-built drawings and calculations be in the owner's possession - the sign can be recreated based on these records for little to no cost.

25-116 Log #25 **Final Action: Accept in Principle**
(5.2.7)

Submitter: Frank Monikowski, SimplexGrinnell
Recommendation: Revise existing 5.2.7 as follows:
Heat ~~Tape~~ Tracing. Heat ~~tape~~ tracing shall be inspected and maintained per manufacturer's requirement.
Substantiation: The industry term associates more with heat tracing rather than heat tape. Inspecting does not do much unless maintenance is performed if needed.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
5.2.6 Heat ~~Tape~~ Tracing. Heat ~~tape~~ tracing shall be inspected and maintained in accordance with ~~per~~ manufacturer's requirement.
Committee Statement: NFPA 13, Standard for the Installation of Sprinkler Systems, refers to Heat Tracing and not Heat tape. Change is for correlation.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-117 Log #105 **Final Action: Accept**
(5.2.8)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revised 5.2.8 as follows:
5.2.8* General Information Sign. The general information sign required by 4.1.8 shall be inspected annually to verify that it is provided, securely attached, and is legible.
Substantiation: The heading is changed to match the correct name of the sign per NFPA 13 and section 4.1.8. The additional text is needed to make it clear that this sign is to be present on each system control valve, antifreeze loop, and auxiliary system control valve. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
FIELD, G.: I am voting negative because of the use of the word "General." "Information Sign" matches the wording in 4.1.8. Proposal 25-72 (Log #31) which would have matched the information supplied/requested in the current NFPA 13 "General Information Sign" was rejected by the Committee. Information requested in NFPA 25 4.1.8 is far different in scope and intent than the NFPA 13 sign. Thus, the use of "Information Sign" wording will not be confused with "General Information Sign" wording.

25-118 Log #128 **Final Action: Accept in Principle**
(5.2.9 and A.5.2.9)

Submitter: Robert G. Caputo, Fire & Life Safety America
Recommendation: Add new text to read as follows:
5.2.9 General Information Sign. The general information sign required by NFPA 13 Section 24.6.1 shall be inspected annually to verify that it is securely attached and legible.
A 5.2.9 It is not the intent of this section to require verification of sprinkler system design criteria, storage arrangements or building uses based upon the data provided on the general information sign. The data provided is intended to assist the local AHJ and others when an evaluation of the system is required by Section 4.1.5 of this standard. The general information sign is not required for systems installed prior to the NFPA 13 2007 edition.
Substantiation: TC on Sprinkler Installation Criteria added Section 24.6 in the 2007 edition code cycle to ensure core information will be available to those conducting an evaluation of system adequacy into the future when as built plans and relevant design data may not be readily available. This general information sign and its data are beneficial to owner's, tenants, AHJ's and others when evaluating systems and should be inspected to ensure it is present (when required), secure and legible.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25- 117(Log #105).
Committee Statement: See Committee Statement on Proposal 25-117 (Log #105).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 29 Negative: 4
Explanation of Negative:
FANTAUZZI, J.: Although this material is of value, the annex material is not addressed by 25-117.
LEAVITT, R.: While I agree with the action regarding the relationship to 25-35 (Log #117), it does not incorporate the annex material proposed by the submitter. I believe the annex material should be included.
SHEPPARD, J.: See my comments for 25-42.
UNDERWOOD, D.: See comments on 25-42.

25-119 Log #9 **Final Action: Reject**
(5.3.2)

Submitter: Byron F. Blake, SimplexGrinnell, LP
Recommendation: Revise text to read as follows:
Gauges shall be replaced every 5 years or tested every 5 years by comparison with a calibrated gauge. Gauges not accurate to within 3 percent of the full scale shall be recalibrated or replaced. 5 year testing period shall be determined from the date of gauge manufacturer [where provided]. When date of manufacturer cannot be readily determined date of installation shall govern [where provided].
Substantiation: NFPA 25 standard states that pressure gauges are to be replaced or recalibrated at five year intervals. The standard is vague. The standard does not indicate whether the five year interval starts from the date of pressure gauge manufacture, from the date the pressure gauge was installed

(installation date), from the date of certificate of occupancy, date of fire final; date of "rough" inspection or some other date.

It is currently industry practice to replace (or recalibrate, though this is uncommon) pressure gauges at five year intervals based on the date of installation. This industry practice is achieved through permanent field marking (e.g. Sharpie type magic marker) of the date of gauge replacement on the pressure gauge facing or body.

The vagueness in the standard allows for different interpretation and causes confusion among owners of these systems, service providers who work on these systems and Authorities Having Jurisdiction. At present, there appears to be no scientifically based peer reviewed literature addressing the frequency of or number of pressure gauge failures. There appears to be no NFPA, FM, UL or other study to support the current NFPA standard in replacing or calibrating gauges at five year intervals. Regardless, the vagueness in the standard is problematic. The recommended text addresses the vagueness.

Committee Meeting Action: Reject

Committee Statement: Gauges are new when placed into service. The current language meets the committee's intent.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-120 Log #160 **Final Action: Accept in Principle**
(5.3.2.3 (New))

Submitter: Russell B. Leavitt, Telgian Corporation

Recommendation: Add the following:

5.3.2.3 Where multiple system risers are supplied by a common source and the gauges for all system risers read within 3 percent of the other, the gauges shall not be required to be tested or replaced.

Substantiation: Where multiple system risers contain gauges that all are reading within an acceptable range, it is apparent that they are functioning to accepted tolerances and do not need further investigation.

Committee Meeting Action: Accept in Principle

Revise text to read as follows:

5.3.2.3 Where multiple system risers are supplied by a common water supply source with gauges located at the same elevation, and the gauges for all systems read within 3 percent of the other(s), only one gauge shall be required to be tested to determine if replacement is required.

Committee Statement: The technical committee believes that all gauges could be equally "spiked".

Number Eligible to Vote: 33

Ballot Results: Affirmative: 31 Negative: 2

Explanation of Negative:

SHEPPARD, J.: Agree with submitter's substantiation.

UNDERWOOD, D.: Agree with submitters proposal as written.

25-121 Log #93 **Final Action: Reject**
(5.3.3, 5.3.3.1, 5.3.3.2)

Submitter: Howard G. Clay, VSC Fire & Security, Inc.

Recommendation: Revise text to read as follows:

~~Vane type and pressure type~~ All waterflow devices shall be tested ~~semiannually~~ quarterly.

Note: Delete 5.3.3.1

Substantiation: Notwithstanding the testing performed by NFPA 72 in 1996 showing the failure rates of the switches with no appreciable difference between quarterly and semiannual testing, NFPA 25, 2008 edition still requires the testing of other pressure switches (low air, low temp) to be tested on a quarterly basis. Arguably the most, if not one of the most, important switches on a water based fire protection system has been changed from quarterly to semiannual testing while other switches still require their testing on a quarterly basis, even though the switches operate identically. The goal of NFPA 25 is to provide the community with a reasonable degree of protection while decreasing the human error. The best way to decrease human error is to focus the inspector's attention in as few directions as possible. The inspector should be focused on the knowledge he has of how to test the equipment, not on whether the test is needed this visit. Similar equipment should be grouped together and tested at the same intervals.

Committee Meeting Action: Reject

Committee Statement: Statistics used to revise the testing period showed minimal failure rates for waterflow signal devices. No data is provided to justify returning to a quarterly test frequency.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 32 Negative: 1

Explanation of Negative:

FULLER, D.: I agree with the submitters substantiation and support quarterly testing of sprinkler water flow alarms. Water flow alarms are the most critical supervisory switch in the sprinkler system, yet it does not have the most frequent inspection interval even though the is no appreciable difference in design or reliability levels between water flow switches and other supervisory switches in the system. This is inconstant with best fire protection practice.

25-122 Log #261 **Final Action: Reject**
(5.3.3.1, 5.3.3.1.1, and 5.3.3.1.2 (New))

Submitter: Don Moeller/Chair/TC on Cultural Resources, The Fire Consultants, Inc.

Recommendation: Revise 5.3.3.1 by adding new paragraphs 5.3.3.1.1 and 5.3.3.1.2 as follows:

5.3.3.1 Mechanical waterflow devices including, but not limited to, water motor gongs, shall be tested quarterly.

5.3.3.1.1 The seminannual tests of waterflow devices shall be conducted using the most remote test connection on the system piping.

5.3.3.1.2 Tests of waterflow devices between semiannual tests shall be conducted using a means that does not introduce fresh water into the system piping.

Substantiation: This proposal is being submitted by me as chair of the Technical Committee on Cultural Resources on behalf of the committee at its direction via a vote at its November 2011 meeting. The same proposal was balloted and submitted in the committee's name during the last revision cycle, but could not be balloted for this cycle due to timing restrictions.

The testing of the waterflow alarms by opening the inspector's test connection and flowing water into the sprinkler system introduces oxygen into the system, which promotes corrosion of the piping. Since oxygen remains in the water for approximately one month after being introduced into the system, too frequent replacement of water during testing of the waterflow devices ensures that the sprinkler system will have an almost continuous supply of oxygen.

Committee Meeting Action: Reject

Committee Statement: A remote test connection is not required to test the waterflow signal device.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-123 Log #328 **Final Action: Reject**
(5.3.3.3)

Submitter: Peter A. Larrimer, US Department of Veterans Affairs

Recommendation: Modify 5.3.3.3 as follows:

5.3.3.3 Testing waterflow alarm devices on wet pipe systems shall be accomplished by opening the inspector's test connection and flowing water equal to that from a single sprinkler of the smallest orifice size.

Substantiation: This is attempt to coordinate testing with NFPA 72. The verbiage added was removed from NFPA 72 and reference to NFPA 25 was made in that document. This will require that the waterflow switch operates as intended.

Committee Meeting Action: Reject

Committee Statement: This is an installation issue and the existing test requirement sufficiently addresses this. It can be assumed that the flow from the ITC will be equal to or less than the flow of the smallest sprinkler orifice.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 32 Negative: 1

Explanation of Negative:

FULLER, D.: I believe that this proposal to specify an ITC flow equal to the smallest sprinkler orifice size adds clarity to the document and is constant with the installation requirements. I disagree with the committee statement that this can be "assumed" and moreover does not take into consideration modification to the ITC post installation. The addition of this text will improve clarity and eliminate the need for any "assumptions".

25-124 Log #302 **Final Action: Reject**
(5.3.3.4)

Submitter: Tracey D. Bellamy, Telgian Corporation

Recommendation: Delete 5.3.3.4

Substantiation: This section is not be specific to Waterfow Alarm Devices and should not be a part of the parent Section 5.3.3 regarding such.

Committee Meeting Action: Reject

Committee Statement: TG believes this section is needed to ensure pumps remain in service and to reduce the potential for failure to return the pump system to service after completion of testing. The technical committee acknowledges that this is redundant however due to the importance of the issue, the redundancy is warranted.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-125 Log #13 **Final Action: Accept in Principle**
(5.3.4.2)

Submitter: Technical Correlating Committee on Automatic Sprinkler Systems,

Recommendation: The TCC recommends that the NFPA 25 TC review the need to specify the purity of antifreeze solutions in section 5.3.4.2.

Substantiation: Field mixing is no longer permitted based on the acceptance of TIA 1014, therefore there is no need to specify purity.

Committee Meeting Action: Accept in Principle

Committee Statement: The Technical Committee has reviewed the issue and determined that the standard adequately addresses purity of solutions. No modifications are made to the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-126 Log #15 **Final Action: Accept**
(5.3.4.2(6) (New))

Note: This Proposal originates from Tentative Interim Amendment 25-11-2 (TIA 1026) issued by the Standards Council on August 11, 2011.
Submitter: Scott T. Franson, The Viking Corporation
Recommendation: *1. Add a new 5.3.4.2(6) to read as follows:*
(6) Premixed antifreeze solutions of propylene glycol exceeding 40% concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are listed for such use in a specific application.
Substantiation: In the recently adopted NFPA 25 TIA 1014 propylene glycol solutions exceeding 40% in ESFR systems are not allowed. This does not correlate with the recently adopted NFPA 13 TIA 1015 which does allow propylene glycol solutions exceeding 40% in ESFR systems when the sprinkler is listed as such. Per review and discussion the TCC directed a task group to draft this TIA regarding this matter for correlation between NFPA 13 and NFPA 25.
Emergency Nature: Without the addition of the above paragraph, NFPA 25 will require existing ESFR systems utilizing 50% propylene glycol to be drained and replaced with 38% propylene glycol resulting in substantially reduced freeze protection thereby creating a problem for the system owner.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-127 Log #134 **Final Action: Accept in Principle**
(5.4.1.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add new text as shown and renumber subsequent sections.
5.4.1.1 When a sprinkler has been removed for any reason it shall not be reinstalled.
Substantiation: The NFPA 13 Installation Criteria technical committee has determined that sprinkler cannot be reused for any reason. This is the same language adopted during the NFPA 13 ROC. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
5.4.1.1 ~~When~~ Where a sprinkler has been removed for any reason it shall not be reinstalled.
Committee Statement: Editorial change.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
ELVOVE, J.: Concur with Mr. Larrimer. Added cost without technical justification for the change.
LARRIMER, P.: No substantiation was provided to the committee to justify this new requirement.

25-128 Log #161 **Final Action: Accept in Principle**
(5.4.1.1, 5.4.1.1.1, and 5.4.1.4.1)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add the following new text:
5.4.1.1 Replacement sprinklers shall have the proper characteristics for the application intended, ~~which shall include the following:~~
~~(1) Style~~
~~(2) Orifice Size and K-factor~~
~~(3) Temperature rating~~
~~(4) Coating, if any~~
~~(5) Deflector type (e.g. upright, pendant, sidewall)~~
~~(6) Design requirements~~
5.4.1.1.1 A list of the sprinklers installed in the property shall be posted in the sprinkler cabinet and shall include the following:
(1) Sprinkler Identification Number (SIN) if equipped: or the manufacturer. model. orifice. deflector tvpe. thermal sensitivity. and pressure rating
(2) General description
(3) Quantity of each type to be contained in the cabinet
(4) Issue or revision date of the list
Renumber existing 5.4.1.1.1. and 5.4.1.1.2
5.4.1.4.1 The sprinklers shall correspond to 5.4.1.1.1 and the types and temperature ratings of the sprinklers in the property.
Substantiation: NFPA 13 requires a list of the types of sprinklers used in the property. NFPA 25 should do the same to ensure that the proper types of spare sprinklers are maintained.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-130 (Log #20).
Committee Statement: See Committee Statement on Proposal 25-130 (Log #20).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-129 Log #12 **Final Action: Accept in Principle**
(5.4.1.4)

Submitter: Technical Correlating Committee on Automatic Sprinkler Systems,
Recommendation: The TCC directs the TC's to develop a joint task group to review the requirements for number of spare sprinkler heads required to be kept on site.
Substantiation: The number of spare heads required varies from document to document. This activity should be coordinated
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-130 (Log #20).
Committee Statement: See Committee Statement on Proposal 25-130 (Log #20).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-130 Log #20 **Final Action: Accept**
(5.4.1.4)

Submitter: Milosh T. Puchovsky, Worcester Polytechnic Institute
Recommendation: Revise text to read as follows:
5.4.1.4* Stock of Spare Sprinklers. A supply of at least six spare sprinklers ~~(never fewer than six)~~ shall be maintained on the premises so that any sprinklers that have operated or been damaged in any way can be promptly replaced.
5.4.1.4.1 The sprinklers shall correspond to the types and temperature ratings of the sprinklers in the property.
5.4.1.4.2 The sprinklers shall be kept in a cabinet located where the temperature in which they are subjected will at no time exceed 100°F (38°C).
5.4.1.4.3 Where dry sprinklers of different lengths are installed, spare dry sprinklers shall not be required, provided that a means of returning the system to service is furnished.
5.4.1.4.4 The stock of spare sprinklers shall include all types and ratings installed and shall be as follows:
(1) For protected facilities having under 300 sprinklers—no fewer than 6 sprinklers
(2) For protected facilities having 300 to 1000 sprinklers — no fewer than 12 sprinklers
(3) For protected facilities having over 1000 sprinklers — no fewer than 24 sprinklers
~~**5.4.1.6*** A special sprinkler wrench shall be provided and kept in the cabinet to be used in the removal and installation of sprinklers.~~
~~**5.4.1.6.1** One sprinkler wrench shall be provided for each type of sprinkler installed.~~
5.4.1.4.5*One sprinkler wrench as specified by the sprinkler manufacturer shall be provided in the cabinet for each type of sprinkler installed to be used for the removal and installation of sprinklers in the system.
5.4.1.4.6 A list of the sprinklers installed in the property shall be posted in the sprinkler cabinet.
5.4.1.4.6.1* The list shall include the following:
(1) Sprinkler Identification Number (SIN) if equipped; or the manufacturer, model, orifice, deflector type, thermal sensitivity, and pressure rating
(2) General description
(3) Quantity of each type to be contained in the cabinet
(4) Issue or revision date of the list
A.5.4.1. 4.5~~6~~. ~~Other types of wrenches could damage the sprinklers.~~ One sprinkler wrench design can be appropriate for many types of sprinklers and should not require multiple wrenches of the same design.
A.5.4.1.4.6.1 The minimum information in the list contained in the spare sprinkler cabinet should be marked with the following; a general description of the sprinkler, including upright, pendent, residential, ESFR, etc.; and the quantity of sprinklers that is to be maintained in the spare sprinkler cabinet. An example of the list is shown in Figure A.5.4.1.4.6.1
Substantiation: This language was revised to be consistent with the requirements of NFPA 13 Section 6.2.9.
This proposed language was created by an intercommittee task group consisting of members of the RSS, SSI and NFPA 25 TC's. This task group was created at the request of the TCC. (see 13-82a Log #575).
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-131 Log #301 **Final Action: Reject**
(5.4.1.4.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
5.4.1.4.2 The sprinklers shall be kept in a cabinet located where the temperature in which they are subjected will at no time exceed 100°F (38°C) for cabinets containing sprinklers with an ordinary temperature rating.

Substantiation: The restriction for a 100°F maximum temperature rating is warranted for ordinary temperature rated sprinklers. Higher rated sprinklers allow for temperatures of 150°F and greater.
Committee Meeting Action: Reject
Committee Statement: The language needs to correlate with the installation standard. Prior to the NFPA 13 ROC meeting a task group was assembled to coordinate the spare sprinkler requirements among NFPA 13, Standard for the Installation of Sprinkler Systems, 13R, Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height, and 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-132 Log #314 **Final Action: Reject**
(5.4.1.4.3 (New))

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Add new text to read as follows:
5.4.1.4.3 The location of the cabinet shall be identified at the riser if the cabinet is not located next to the riser.
Substantiation: Finding the location of the sprinkler cabinet should not be an adventure of hide and go seek when it is not located next to the riser. While the preferred location of the cabinet is for it to be near the riser, there are situations when this is not possible. In these cases, the location should be noted at the riser so that it may be inspected in accordance with this Standard.
Committee Meeting Action: Reject
Committee Statement: The location of the cabinet can be identified elsewhere. It is not practical to provide signage at a riser that is located outside of the building. For environmental reasons it would be impractical to keep the sign in place.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been accepted. The spare heads are provided to allow the system to be placed back in service following an activation. If the location of these spare heads is unknown, the result may be a system being left OUT of service simply because no one knew that the spare heads were located in the maintenance office (for example). Recall the fires that were set in LA during the "Rodney King riots". There are documented cases of systems in a single building activating and controlling fires set by rioters as many as 3 times during those riots - had the responders been unable to locate the spare heads, these systems would have had to have been left out of service and the subsequent arson fires would have destroyed the buildings and/or caused death or injuries to fire fighters or citizens. Fire sprinkler systems can ONLY work if they are in service.

25-133 Log #176 **Final Action: Accept**
(5.4.1.7)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Move section 5.4.1.7 to the end of section 5.4.1, renumber, add a title, and revise as shown. Renumber other sections accordingly including annex.
5.4.1.~~7~~9 Protective Coverings.
5.4.1.~~7~~9.1 Sprinklers protecting spray ~~coating~~ areas and mixing rooms in resin application areas installed with protective coverings shall continue to be protected against overspray residue so that they will operate in the event of fire.
5.4.1.~~7~~9.2* Sprinklers ~~subject to overspray accumulations~~ installed as described in 5.4.1.9.1 shall be protected using cellophane bags having a thickness of 0.003 in. (0.076 mm) or less or thin paper bags.
5.4.1.~~7~~9.3 Coverings shall be replaced periodically so that heavy ~~when~~ deposits of ~~or~~ residue do not accumulate.
Substantiation: These changes clarify the entire application of protective coverings by adding a separate section title and using most of the wording from NFPA 13. The use of protective coverings is very limited in NFPA 13 and the current text in NFPA 25 seems to imply that these coverings can be retrofitted in other applications. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-134 Log #107 **Final Action: Accept in Principle**
(5.4.3)

Submitter: John Desrosier, Tyco Fire Protection Products
Recommendation: Delete section 5.4.3 and the corresponding annex section A.5.4.3 in their entirety.
Substantiation: Delete the provided section as this section of code is redundant. Table 5.5.1 Summary of components Replacement Action Requirements covers this scenario and the explanatory material is not relevant to NFPA 25 as it should be thoroughly explained in NFPA 13. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-135 (Log #162).
Committee Statement: See Committee Statement on Proposal 25-135 (Log #162).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-135 Log #162 **Final Action: Accept**
(5.4.3 and A.5.4.3)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Delete entire text as follows:
~~**5.4.3 Installation and Acceptance Testing.** Where maintenance or repair requires the replacement of sprinkler system components affecting more than 20 sprinklers, those components shall be installed and tested in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*.~~
~~**A.5.4.3** Where pressure testing listed CPVC piping, the sprinkler systems should be filled with water and air should be bled from the highest and farthest sprinkler before test pressure is applied. Air or compressed gas should never be used for pressure testing.~~
~~For repairs affecting the installation of less than 20 sprinklers, a test for leakage should be made at normal system working pressure.~~
Substantiation: 5.4.3 is redundant as is covered by 1.1.4 for installation and Table 5.5.1 for acceptance testing. A.5.4.3 is unneeded as this information is contained in the installation standard.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-136 Log #40 **Final Action: Accept in Principle**
(Table 5.5.1)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Modification to table 5.5.1 as follows:
Table 5.5.1 Alarm and Supervisory Components
Component: Pressure switch-type waterflow device. **Required Action**: Operational test using the ~~inspector's test connection~~alarm by pass test valve
Component: Detection systems (for deluge or preaction system). **Required Action**: Operational test for conformance with ~~NFPA 13~~ chapter 13 and / or NFPA 72.
Substantiation: A pressure style water flow switch would require the operation of the alarm by pass valve for proper test. Detection systems section should be referring to chapter 13 of NFPA 25 not NFPA 13. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise table to read as follows:
Table 5.5.1 Alarm and Supervisory Components.
Component: Pressure switch-type waterflow device. **Required Action**: Operational test using the inspector's test connection or alarm by pass test valve.
Committee Statement: Either the ITC or alarm by-pass are acceptable options.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-137 Log #146 **Final Action: Accept**
(Table 5.5.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change the "Required Action" in Table 5.5.1 Summary of Component Replacement Action Requirements for the "Informational Components" as follows:
Identification signs X X X Check for conformance with NFPA 13 and this standard
Hydraulic ~~placards~~ Design Information Sign X X X Check for conformance with NFPA 13 and this standard
General Information Sign X X X Check for conformance with this standard
Substantiation: The Informational Components, or signs, need to be present, attached properly, and legible to comply with NFPA 25. The names need to be changed to match what's in NFPA 13 & 25, and the requirement for the General Information Sign needs to be added. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
SHEPPARD, J.: See my comments for 25-42.

25-138 Log #71 **Final Action: Accept in Principle**
(5.5.2)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/SimplexGrinnell
Recommendation: Modify existing text:
5.5.2* A ~~main drain~~ waterflow test shall be ~~required~~ conducted if the system

control or other upstream valve is operated ~~in accordance with 13.3.3.4.~~ to verify the valve is open.
Substantiation: Upstream valves may not have main drains, so the term waterflow test would be inclusive to all drain tests, main or sectional.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-244 (Log #CP12).
Committee Statement: See Committee Statement on Proposal 25-244 (Log #CP12).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-139 Log #18 **Final Action: Reject**
(Table 6.1.1.2)

Submitter: Scott Adams, Western Regional Fire Code Development Committee
Recommendation: Table 6.1.1.2
Recommendation: Revise table to read:
Testing
Hose ~~5 years/3 years~~ Annually NFPA 1962
Substantiation: NFPA 1962 requires annual testing of fire hose. We can find no mention of a 3 or 5 year testing in 1962. The change is consistent with the requirements in 1962.
Committee Meeting Action: Reject
Committee Statement: The requirement for the annual test in NFPA 1962, Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose, is for service hose. The proposed frequency is excessive for the purposes of hoses covered by NFPA 25. The required frequencies of 5/3 years are for occupant use hose in accordance with 1962 (Section 4.3.2).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-140 Log #295 **Final Action: Accept in Principle**
(Table 6.1.1.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
Change the frequency of Inspection for Gauges from Weekly to Weekly/ Monthly.
Revise the Test Item entry for Valve supervisory ~~alarm~~ devices as shown.
Substantiation: Change needed to match the varying inspection frequencies in 6.2.2
Tamper switches are not alarm devices.
Committee Meeting Action: Accept in Principle
Change the frequency of Inspection for Gauges from Weekly to Weekly/ ~~Monthly~~Quarterly.
Revise the Test Item entry for Valve supervisory ~~alarm~~ devices as shown.
Committee Statement: Modifications were made for consistency with changes made to Chapter 5.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-141 Log #309 **Final Action: Accept in Principle**
(Table 6.1.1.2)

Submitter: Ken Bogue, SimplexGrinnell/Rep Tyco/SimplexGrinnell
Recommendation: In Table 6.1.1.2 add Hose Valves as an item in all three sections, Inspection, Test, and Maintenance. Do not indicate a frequency, and add "Table 13.1" under Reference for each.
In Table 6.1.1.2 add Hose Connections as an item under the Test section. Do not indicate a frequency, and add "Table 13.1" under Reference.
Substantiation: Add the term "Hose valve" to all three sections, add the term "Hose Connections" to the Test section of the table, and refer all of these to Table 13.1.1.2. The hose valve is a key component and needs to be inspected, tested and maintenance performed. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
1) In Table 6.1.1.2 and 13.1.1.2 add Hose Valves as an item in all three sections, Inspection, Test, and Maintenance. Do not indicate a frequency, and add "Table 13.1.1.2" under Reference for each with 6.1.1.2. Frequencies from 13.5.6.2 (annual/3 years "test") 13.5.6.1 (quarterly "inspection")
2) In Table 6.1.1.2 add Hose Connections as an item under the Test and Inspect section. Do not indicate a frequency, and add "Table 13.1.1.2" under Reference.
Committee Statement: Modifications were made to the proposal to include the hose valve ITM task in both Chapter 6 and 13 tables for completeness. There are inspection tasks for hose connections that are not currently addressed in Table 6.1.1.2. A task group will review Table 13.1.1.2 to make sure all narrative requirements are summarized.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-142 Log #310 **Final Action: Reject**
(6.1.2, Table 6.1.2, and 6.1.3)

Submitter: Ken Bogue, SimplexGrinnell/Rep Tyco/SimplexGrinnell
Recommendation: Move Table 6.1.2 to the annex and change the number to Table A.6.5.1.
Add an Asterisk to 6.5.1. (*)
Move Sections 6.1.2 and 6.1.3 to the annex as A.6.5.1 and revise as shown.
~~6.1.2~~A.6.5.1 Table A.6.~~1.2~~.5.1 ~~shall~~ can be used for guidance for the inspection, testing, and maintenance of all classes of standpipe and hose systems. **~~6.1.3~~** Checkpoints and corrective actions outlined in Table A.6.~~1.2~~.5.1 ~~shall be followed~~ are recommended to determine that components are free of corrosion, foreign material, physical damage, tampering, or other conditions that adversely affect system operation.
Substantiation: Table 6.1.2 on standpipe and hose systems needs to be placed in the annex as reference materials for corrective action. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The language provided in the standard is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-143 Log #300 **Final Action: Accept in Principle**
(6.2.2.1 and 6.2.2.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
6.2.2.1 Gauges on automatic wet and semi-automatic dry standpipe systems shall be inspected monthly to ensure that they are in good condition and that normal water supply pressure is being maintained.
6.2.2.2 Gauges on automatic dry, ~~preaction, and deluge valves~~ standpipe systems shall be inspected weekly to ensure that normal air or nitrogen and water pressure are being maintained.
Substantiation: The revised language more appropriately matches the specific types of standpipe systems to which the inspection of gauges apply.
Dry systems can include the use of nitrogen as well as air and should be recognized.
Committee Meeting Action: Accept in Principle
Revise proposed language as follows:
6.2.2.1 Gauges on automatic wet and semi-automatic dry standpipe systems shall be inspected ~~monthly~~ quarterly to ensure that they are in good condition and that normal water supply pressure is being maintained.
6.2.2.2 Gauges on automatic dry, ~~preaction, and deluge valves~~ standpipe systems shall be inspected weekly to ensure that normal air or nitrogen and water pressure are being maintained.
Update Table 6.1.2 for "gauges" to be inspected "quarterly/weekly" (in frequency column).
Committee Statement: This modification has been revised for consistency with the gauge inspection frequency modified in Chapter 5.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-144 Log #137 **Final Action: Accept**
(6.2.3)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise section 6.2.3 and add new sections 6.2.3.1 and 6.2.3.2 as follows:
6.2.3* Hydraulic Design Information Sign. ~~When provided, t~~The hydraulic design information sign for standpipe systems shall be inspected annually to verify that it is provided, attached securely, and is legible.
6.2.3.1 A hydraulic design information sign that is missing or illegible shall be replaced.
6.2.3.2 A standpipe system that was not sized by hydraulic design shall have a hydraulic design information sign that reads "Pipe Schedule System".
6.2.3.3 The property owner or designated representative shall provide the design criteria needed to comply with 6.2.3.1 and 6.2.3.2.
Substantiation: There is always a question about the need for a hydraulic design information sign when none is present on the standpipe system. The proposed changes make it clear that if a sign isn't present, one needs to be provided, either to replace the one that's missing, or to retrofit a sign if the standpipe system is a pipe schedule. When a sign needs to be replaced or added, the owner is to supply the information for the sign based on the records from the original installation, or from the most recent system evaluation. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 27 Negative: 6

Explanation of Negative:

DRYSDALE, M.: Requiring that the design information be available is consistent with NFPA 13 and is reasonable. It should be acceptable to have the information on a hydraulic design information sign on the riser or in available design documents. Over time, information signs can become illegible or lost. The current systems for maintaining electronic data make that option equally secure.

ELVOVE, J.: This proposal should have been treated the same as a similar proposal on hydraulic design information signs for 52.6 (ROP 25-114); i.e., 6.2.3.3 should have been deleted, just like 5.2.6.3 was deleted by the committee action on ROP 25-114.

LARRIMER, P.: See negative comment on 25-114.

SAIDI, J.: This new requirement puts undue burden on the owners, and should be moved to the annex.

SHEPPARD, J.: See my comments for 25-42.

UNDERWOOD, D.: See comments on 25-42.

25-145 Log #231 **Final Action: Accept in Principle**
(6.3.1.1, 6.3.1.2, and 6.3.1.3)

Submitter: James M. Feld, University of California
Recommendation: Revise Sections 6.3.1.1, 6.3.1.2, and 6.3.1.3 as follows:
6.3.1 Flow Tests.

6.3.1.1* A flow test shall be conducted every 5 years on all standpipe systems ~~at the hydraulically most remote hose connections of each zone of an automatic standpipe system~~ to verify that the required flow and pressure are available at the hydraulically most remote hose value outlet(s) while flowing the standpipe system demand. ~~the water supply still provides the design pressure at the required flow.~~

6.3.1.2 Where a flow test of the hydraulically most remote outlet(s) is not practical, the authority having jurisdiction shall be consulted for the appropriate location for the test.

6.3.1.3 ~~All systems shall be flow tested and pressure tested at the requirements for~~ The standpipe system demand shall be based on the design criteria in effect at the time of the installation. Where the standpipe system demand cannot be determined, the authority having jurisdiction shall determine the standpipe system demand.

Substantiation: There is a conflict between Sections 6.3.1.1 and 6.3.1.3. Section 6.3.1.1 requires a flow test for each zone of automatic standpipe systems. Section 6.3.1.3 requires a flow test for ALL standpipe systems regardless of whether they re multi-zoned systems or not.

Standpipe systems represent a critical tool for fire fighters to use to extinguish a fire. This occurs in buildings protected with a fire sprinkler system and those which are not so protected. It is essential to ensure that standpipe systems operate as intended and that fire fighters have confidence in the standpipe system to provide the required water flow at required pressures. If the proper flow rate and pressure are not provided, not only is the property in jeopardy of being destroyed, but also, more importantly, the lives of the occupants and the fire fighters are in jeopardy.

Committee Meeting Action: Accept in Principle
Revise text to read as follows:

6.3.1 Flow Tests.

6.3.1.1* A flow test shall be conducted every 5 years on all automatic standpipe systems ~~at the hydraulically most remote hose connections of each zone of an automatic standpipe system~~ to verify that the required flow and pressure are available at the hydraulically most remote hose value outlet(s) while flowing the standpipe system demand. ~~the water supply still provides the design pressure at the required flow.~~

6.3.1.2 Where a flow test of the hydraulically most remote outlet(s) is not practical, the authority having jurisdiction shall be consulted for the appropriate location for the test.

6.3.1.3 ~~All systems shall be flow tested and pressure tested at the requirements for~~ The standpipe system demand shall be based on the design criteria in effect at the time of the installation. Where the standpipe system demand cannot be determined, the authority having jurisdiction shall determine the standpipe system demand.

Committee Statement: The 5 year hydrostatic test is still required for manual standpipe systems, which should provide verification that system is in working order.

Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:

FELD, J.: Firefighters rely on standpipe systems to fight fires:
1. when the building is not protected with a fire sprinkler system, or
2. when the fire sprinkler system is out of service as occurs during a tenant improvement, or
3. when the fire overwhelms the fire sprinkler system, or
4. to complete extinguishment of a fire that is controlled by a fire sprinkler system.

In any case, the reliance the fire fighter places on a standpipe system must be without question. Firefighters train on supplying standpipe systems assuming the FDC is inoperable by supplying the standpipe using the first floor hose valve (unless it is a PRV) because experience has taught them that systems deteriorate over time and things break (nothing lasts forever - or even the life of a building). It is very important that a standpipe system is operable in order for firefighters to effectively fight a fire to save lives and property and protect the firefighters themselves.

The first edition of NFPA 25 recognized the value of having a reliable standpipe system by requiring ALL standpipe systems to be tested for flow and pressure. The 2002 edition changed flow testing of all standpipe systems to flow testing of only automatic standpipe systems. The Committee's Substantiation was:

"*Manual wet and dry standpipe systems have no automatic water supply requirements. Some building owners and AHJ's are conducting flow tests on manual wet systems but are asking for pass/fail criteria for these tests. There are none, unless one considers 500 gpm @ 65 psi as the test criteria, but then a manual pump must be brought in and it will simply pump elevated volumes and pressures until the standpipe passes the 65 psi criteria.*"

The Committee's Substantiation was misguided as NFPA 25 had requirements for flow testing standpipes. From the 1998 edition of NFPA 25: Section 3-3.1.1:

"A flow test shall be conducted at the hydraulically most remote hose connection of each zone of a standpipe system to verify the water supply still adequately provides the design pressure at the required flow."

And also in Section 3.3.1.3:

"All systems shall be flow tested and pressure tested at the requirements in effect at the time of the installation."

Therefore, the Committee was in error as NFPA 25 did provide test criteria.

NFPA 14 requires an acceptance test of standpipe systems. If it is done at the beginning of the life of a standpipe system, then it should also be conducted at 5 year intervals to ensure it is operable during a crisis.

NFPA 25 currently requires a flow test for all automatic standpipe systems. This includes Class II standpipe systems. Class II systems are for occupant use. Many occupants are directed to not use such standpipes as they are not trained. Hose for Class II standpipe systems is not required in buildings protected with a fire sprinkler system and yet NFPA 25 requires the Class II standpipe system to be flow tested. REALLY!!

The committee statement for the current proposal was based solely on a requirement in NFPA 25 that manual standpipe systems are required to be hydrostatically tested. Only manual standpipes that are NOT a part of a combined sprinkler/standpipe system are required to be hydrostatically tested. A great majority of standpipe systems that are installed today are combined systems and therefore, will NOT be hydrostatically tested. These systems will never be tested hydrostatically or tested for flow and pressure. I find it very difficult to believe that a hydrostatic test is comparable to a flow test to ensure the proper flow and pressure at the remote standpipe hose valve.

NFPA 25 requires the following systems and devices to be flow tested:
Water spray systems
Foam-water systems
Backflow Preventers
Pressure reducing valves
Fire Pumps
Fire Hydrants

These are all good tests that are necessary to ensure the reliability of the system or device. However, if Proposal 25-145 is AIP, NFPA 25 will not require a flow and pressure test for manual standpipe systems meaning that NFPA 25 is more concerned about the reliability of a water spray system for a transformer at a power plant, that the reliability of a manual standpipe system to protect a building, its occupants, and the firefighters that will fight the fire.

To those who believe that this is outside the scope of NFPA 25, please consider that the title of the document includes the word "TESTING". The 2011 scope includes the word "TESTING". The newly proposed scope (Proposal 25-7) includes the word "TESTING". To establish pass/fail criteria for a test is necessary or the test is meaningless.

This is a very serious issue and the Committee must consider the ramifications of the consequences of this proposal.

LEAVITT, R.: I agree with the submitter that all standpipes be flow tested. Flow testing of manual standpipes was a part of the standard until 2002 and there was no compelling reason in my opinion for eliminating this test. The availability of unobstructed flow at the needed pressure necessary for manual fire fighting efforts should be verified on a regular basis.

SHEPPARD, J.: Reject. See proposal 25-146. I believe we have actions taken on 25-145 and 25-146 in reverse.

Comment on Affirmative:

LARRIMER, P.: Based upon the committee's prior statements, testing the standpipe to show that it is adequate to perform as it was designed is not within the scope of this standard? See my negative comments on 25-42 and 25-7.

UNDERWOOD, D.: We must add required flow.

25-146 Log #277 **Final Action: Reject**
(6.3.1.1 and 6.3.1.3)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise text to read as follows:
6.3.1.1* ~~A~~ Every automatic standpipe system shall be flow tested ~~shall be conducted~~ at least once every 5 years at the two hydraulically most remote hose connections of each zone ~~of an automatic standpipe system to verify the water supply still provides the design pressure at the required flow~~ with a flow of 250 gpm from each connection for a total flow during the test of 500 gpm.

6.3.1.3 ~~All systems shall be flow tested and pressure tested at the requirements for the design criteria~~ The purpose of the flow test is to make sure that the design pressure in effect at the time of the installation and as provided by the building owner is still available at the flow of 500 gpm at the two most remote outlets.

Substantiation: This proposal attempts to clean up a number of ambiguous situations within the test requirements. First, the proposal is trying to clean up which standpipe systems need to be tested. Section 6.3.1.1 says that "automatic systems" need to be tested, but Section 6.3.1.3 says that "all systems" need to be tested. We know from committee discussion that 6.3.1.3 was intended to be a clarifying statement to 6.3.1.1, not a new requirement for all systems to be tested, but many AHJ's are unaware of this distinction and are requiring tests for all manual standpipe systems.

The second situation that we are trying to clarify is the flow required for the test. The committee has addressed this in the past and tried to clarify that the intent of this test is just to flow 500 gpm, even if the standpipe system has more than one riser. Rather than make building owners have hoses running through buildings or down stairwells to test the system at maximum flow every five years, the committee agreed that the test could be run using the roof manifold or other convenient outlets at the most remote portion of the system. But this has never been explicitly mentioned in the standard.

Committee Meeting Action: Reject

Committee Statement: The proposed revision to 6.3.1.1 adds an additional location for the test (proposed 2 most remote outlets) which adds an unnecessary cost to conducting the test. The flow test is meant to replicate the acceptance test and use the system design reflected by that test.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 31 Negative: 2

Explanation of Negative:

FLEMING, R.: The committee has in the past clarified that 500 gpm is suitable for the standpipe flow testing, and this proposal was simply trying to clean up the language accordingly.

SHEPPARD, J.: See proposal 25-145. I believe we have actions taken on 25-145 and 25-146 in reverse.

25-147 Log #163 **Final Action: Accept in Principle**
(6.3.2.2 and A.6.3.2.2)

Submitter: Russell B. Leavitt, Telgian Corporation

Recommendation: Delete 6.3.2.2.

~~**6.3.2.2** Hydrostatic tests shall be conducted in accordance with 6.3.2.1 on any system that has been modified or repaired.~~

Renumber A.6.3.2.2 to A.6.3.2.1.3

Substantiation: This requirement is covered in Table 6.5.1 Summary of Component Replacement Action Requirments.

Committee Meeting Action: Accept in Principle

Delete 6.3.2.2.

~~**6.3.2.2** Hydrostatic tests shall be conducted in accordance with 6.3.2.1 on any system that has been modified or repaired.~~

Renumber A.6.3.2.2 to A.6.3.2.1

Committee Statement: Revised the relocated annex section to A.6.3.2.1 as it is more appropriate for the content of the annex section.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-148 Log #312 **Final Action: Accept**
(Table 6.5.1)

Submitter: Ken Bogue, SimplexGrinnell/Rep Tyco/SimplexGrinnell

Recommendation: In Table 6.5.1 in the Water Delivery Components section, make two rows for "Fire Hose" and in the Alarm and Supervisory Components section combine "Vane-type waterflow" into one row as shown.

Component	Adjust	Repair	Replace	Required Action
Water Delivery Components				
Fire hose			X	No action required
Fire hose		X		Perform hydrostatic test in accordance with NFPA 1962
Alarm and Supervisory Components				
Vane-type waterflow	X	X	X	Operational test using inspector's test connection
~~Vane-type waterflow~~			~~X~~	~~Operational test using inspector's test connection~~

Substantiation: Fire hoses can be repaired by replacing couplings so the option needs to be added in the table. The required action for a flow switch is the same no matter what corrective action is taken, so they can be combined into one row. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Accept

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-149 Log #72 **Final Action: Accept in Principle**
(6.5.3)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell

Recommendation: Modify existing text:

6.5.3* A ~~main drain~~ waterflow test shall be ~~required~~ conducted if the system control or other upstream valve is operated ~~in accordance with 13.3.3.4.~~ to verify the valve is open.

Substantiation: Upstream valves may not have main drains, so the term waterflow test would be inclusive to all drain tests, main or sectional.

This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Accept in Principle

See Committee Action on Proposal 25-244 (Log #CP12).

Committee Statement: See Committee Statement on Proposal 25-244 (Log #CP12).

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-150 Log #87 **Final Action: Reject**
(7.2.2.1.2)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell

Recommendation: Delete entire section and change annex reference to A.7.2.2.1.1

~~**7.2.2.1.2*** Piping shall be inspected, and the necessary corrective action shall be taken. as specified in Table A.7.2.2.1.2.~~

Substantiation: This is explanatory information on repairs to exposed piping, and should be in Annex A with other explanatory information and not within the body of the document.

This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Reject

Committee Statement: The language provided in the standard is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-151 Log #80 **Final Action: Reject**
(Table 7.2.2.1.2, 7.2.2.3, 7.2.2.4, 7.2.2.5, 7.2.2.6, and 7.2.2.7)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Take the the following actions on tables 7.2.2.1.2, 7.2.2.3, 7.2.2.4, 7.2.2.5, 7.2.2.6, and 7.2.2.7:
1. Combine all six tables into one table, with sections labeled the same as the current title of each table;
2. Move the combined table to the annex as explanatory material to 7.5.1 and add an asterisk to 7.5.1;
3. Title the new table "A.7.5.1 Private Service Mains";
4. Add the following text before the table "A.7.5.1 The following table should be used as guidance for taking possible corrective action when a deficiency is identified."
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Substantiation: Combining all of the corrective action tables currently found within Chapter 7 and moving them to Annex A will provide the reader with guidance from a single location for repairs to private fire service mains.
Committee Meeting Action: Reject
Committee Statement: The Technical Committee is receptive to combining the tables and leaving them in the body of the standard. The language provided is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out. The submitter is encouraged to submit a merged table during the public comment phase.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-152 Log #82 **Final Action: Reject**
(7.2.2.3)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Delete text as follows:
7.2.2.3* Mainline Strainers. Mainline strainers shall be inspected and cleaned after each system flow exceeding that of a nominal 2 in. (50 mm) orifice and shall be removed and inspected annually for failing, damaged, and corroded parts~~,~~ ~~with the necessary corrective action taken as specified in Table 7.2.2.3~~.
Substantiation: This is explanatory information on repairs to mainline strainers and should be in Annex A with other explanatory information and not within the body of the document.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The language provided in the standard is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-153 Log #83 **Final Action: Reject**
(7.2.2.4)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Delete text as follows:
7.2.2.4* Dry Barrel and Wall Hydrants. Dry barrel and wall hydrants shall be inspected annually and after each operation~~,~~ ~~with the necessary corrective action taken as specified in Table 7.2.2.4.~~
Substantiation: This is explanatory information on dry barrel and wall hydrants, and should be in Annex A with other explanatory information and not within the body of the document.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The language provided in the standard is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out. See Committee Action on Proposal 25-152 (Log #82).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-154 Log #294 **Final Action: Reject**
(Table 7.2.2.4 and 7.2.2.5)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
Delete the final entry in each Table for Availability of operating wrench.
Substantiation: Operating wrenches are not typically maintained on premise for fire hydrants but are rather carried by the arriving fire department personnel.
Committee Meeting Action: Reject
Committee Statement: In some plants there are fire brigades that require the wrench for operation.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
ELVOVE, J.: Concur with Mr. Fantauzzi and Mr. Leavitt.
FANTAUZZI, J.: The number of Fire Brigades that would require the use of a hydrant wrench is small and they would most likely be stored on their mobile units. This should not drive a requirement for the majority of facilities.
LEAVITT, R.: This proposal should be accepted. It is not practical or reasonable to require an owner to keep a hydrant wrench in all instances. Fire hydrants (public or private) are to used by trained fire fighting personnel or tested by qualified individuals. If the owner has a fire brigade or self performs hydrant tests, then they should have a wrench. If the owner does not have a fire brigade or does not self perform tests, then there is no need for the owner to have a wrench.

25-155 Log #84 **Final Action: Reject**
(7.2.2.5)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Delete text as follows:
7.2.2.5* Wet Barrel Hydrants. Wet barrel hydrants shall be inspected annually and after each operation~~,~~ ~~with the necessary corrective action taken as specified in Table 7.2.2.5.~~
Substantiation: This is explanatory information on repairs to wet barrel hydrants, and should be in Annex A with other explanatory information and not within the body of the document.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The language provided in the standard is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out. See Committee Action on Proposal 25-152 (Log #82).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-156 Log #85 **Final Action: Reject**
(7.2.2.6)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Delete text as follows:
7.2.2.6* Monitor Nozzles. Monitor nozzles shall be inspected semiannually~~,~~ ~~with the necessary corrective action taken as specified in Table 7.2.2.6.~~
Substantiation: This is explanatory information on repairs to monitor nozzles, and should be in Annex A with other explanatory information and not within the body of the document.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The language provided in the standard is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out. See Committee Action on Proposal 25-152 (Log #82).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-157 Log #86 **Final Action: Reject**
(7.2.2.7)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Delete text as follows:
7.2.2.7* Hose Houses. Hose houses shall be inspected quarterly~~,~~ ~~with the necessary corrective action taken as specified in Table 7.2.2.7.~~
Substantiation: This is explanatory information on repairs to house houses, and should be in Annex A with other explanatory information and not within the body of the document.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The language provided in the standard is enforceable and is written as legislative language. It is intended that these corrective actions are required to be carried out. See Committee Action on Proposal 25-152 (Log #82).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-158 Log #164 **Final Action: Reject**
(7.3.1)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise as follows:
7.3.1 Underground and Exposed Piping Flow Tests. Underground and exposed piping shall be flow tested to determine the condition of the piping at minimum ~~5~~ 3-year intervals.
Substantiation: This test examines the condition of the piping for possible deterioration. This is a critical test and a 5 year intervals is too infrequent. A 3 year interval provides a higher level of protection without significantly increasing costs to the owner.
Committee Meeting Action: Reject
Committee Statement: In increased test frequency is not substantiated. The submitter is encouraged to provide data to substantiate the change in frequency.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-159 Log #269 **Final Action: Reject**
(7.3.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Delete 7.3.1 along with all of its subsections and annex note.
Substantiation: The test required by the current section is extremely expensive and does not add significant value to fire protection systems to offset its cost.
The typical flow test from hydrants as described by NFPA 291 is insufficient to comply with section 7.3.1 because the results cannot determine "the internal condition of the piping" as required by the section. A flow test with two hydrants (one gage hydrant and one flowing hydrant) might be able to show degradations in the available flow, but the results do not indicate whether the degradation is caused by a lack of available flow or pressure from the water supply or a change in the condition of the pipe.
Since the section requires that the condition of the pipe be evaluated, the test has to be run with three hydrants in a row. The flowing hydrant has to have two separate gage hydrants behind it so that the friction loss between the hydrants can be calculated. Once the friction loss is known, the Hazen-Williams formula can be used backwards to solve for the "C" factor, which will give some indication of the pipe condition. In order for this test procedure to work, the underground system needs to be isolated with loops closed so that all of the flow coming out of the flowing hydrant is going through the pipe attached to the two gage hydrants.
There is no reason for this test. As long as the main drain tests (already required by section 13.2.5) are performed, the adequacy of the water supply is fairly well known. When a problem becomes evident due to a poor result from a main drain test, section 13.2.5.2 already requires the problem to be explained. A flow test of the underground might be used to comply with section 13.2.5.2, but it should not be required every 5 years on systems that are already having good main drain test results.
Committee Meeting Action: Reject
Committee Statement: This test determines things other than just the interior condition of the pipe (closed valves, leaks). Some of these underground networks may support hydrants and the test is therefore necessary. Deficiencies have been detected for municipal water supplies such as pressure regulating valve and pump starting failures that react only to larger flow rates.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
FLEMING, R.: We doubt that anyone is actually testing in conformance with current requirement of 7.3.1. Flow tests would be needed of such a character to be able to declare the condition of the underground piping, which appears impossible with fewer than three hydrants, and certainly not possible with systems having a simple lead-in.
RAY, R.: This proposal should have been accepted. The reasons are perfectly outlined by the submitter and it is unnecessary to repeat them here. The committee's comment regarding uncovering deficiencies with municipal water supplies should not be a responsibility of a building owner, rather the municipality should be charged with testing and maintaining their own equipment. The balance of the committee statement is unwarranted (main drain tests will find problems with closed valves).
VICTOR, T.: The committee should accept this proposal. When you read this section carefully as it exists in the standard it is virtually impossible to comply with the requirement unless there are a sufficient number of hydrants on the underground line to be able to flow sufficient water to record a pressure drop at both ends of a section of pipe. It can only be assumed that the "internal condition" should be determined by comparing C-factors from the original hydraulic calculations to the current condition based on the actual friction loss though the length of pipe. Again, this can only be accomplished if pressure readings can be taken at the beginning and at the end of the run of pipe, and a sufficient pressure loss achieved for the calculation. For any section of underground that doesn't have two places to record pressure this requirement can't be met, which would include most lead-ins to most buildings. While the annex explains how flow through the lead-in can be achieved by using FDCs, hose valves, etc., if there's no place for a gauge where the lead-in connects to the water supply the evaluation can't be performed. In addition, where there are sufficient hydrants available to perform this test, there's no pass/fail criteria provided in the requirement. If there is sufficient flow and sufficient pressure to meet system demand, but the C-factor used in the original calculations was 140 and the current calculated C-factor is 100, is that a deficiency? This entire section needs to be removed or totally reworked so all underground arrangements are considered, exceptions given, and pass/fail criteria provided.

25-160 Log #21 **Final Action: Reject**
(Table 7.5.1)

Submitter: Robert R. Nii, CH2M-WG Idaho, LLC
Recommendation: Place an "X" in applicable columns for Valves and for Fire Pumps in Table 7.5.1 Summary of Component Replacement Action Requirements.
Substantiation: Table 7.5.1 Summary of Component Replacement Action Requirements.
Under the "Component" column — for Valves and for Fire Pumps, there are no "X"'s in any column for Adjust, Repair/Recondition, or Replace. It is unclear if the criteria in the Test Criteria column actually apply or not. For example, two rows below there is an X in the Replace column but not in the Adjust or Repair/Recondition columns signifying that the Test Criteria only applies to Replacements. For Valves or Fire Pumps, it is unclear of the Test Criteria from Chapter 13 and Chapter 8 (respectively) are applicable or not.
Committee Meeting Action: Reject
Committee Statement: Direction is already provided for this in Chapter 13 and Chapter 8.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-161 Log #81 **Final Action: Accept in Principle**
(Table 7.5.1)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/SimplexGrinnell
Recommendation: Revise Table 7.5.1 as follows:
System Housing and Protection Components
Hose houses Verify integrity of hose house and hose house components
Hose repair Repair and test hose in accordance with NFPA 1962
Hose replace No action required
Substantiation: Separate components to provide clarification when using Table 7.5.1 with respect to maintaining hose houses, and fire hose contained within hose houses.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Accept the proposed language with the following modifications:
1)Eliminate the word "replace" and "repair" form the component column as proposed by the submitter
2)Place an X in the respective replace and repair columns for the new rows.
Committee Statement: Modifications were made for consistency with the structure of the existing line items in the table. The changes seem to be consistent with the intent of the submitter.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-162 Log #308 **Final Action: Accept in Principle**
(Table 7.5.1)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Add new text to read as follows:
Add Flush in conformance with NFPA 24 to the Test Criteria required for Pipe and fittings (exposed and underground) under Water Delivery Components.
Substantiation: Work conducted on the piping should require flushing of the piping to ensure that no foreign materials remain within the piping.
Committee Meeting Action: Accept in Principle
Add new text to read as follows:
Add Flush in conformance with NFPA 24 to the Test Criteria required for Pipe and fittings (exposed and underground) under Water Delivery Components.
Split the the "Pipe and Fittings" row into 2 rows:
1) Exposed
2) Underground
Add or NFPA 20 as appropriate after the reference to NFPA 24 for the new "underground row"
Committee Statement: Modifications made for clarity by providing specific references to the appropriate NFPA standards (NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection and 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-163 Log #41 **Final Action: Reject**
(8.1.2)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Move 8.1.2 to annex A.8.1.1.2 with modifications as follows:
8.1.2 Alternative Inspection, Testing and Maintenance Procedures, in the absence of manufacture's recommendations for preventative maintenance, Table ~~8.1.2~~ A.8.1.1.2 ~~shall~~ should be used for alternative requirements.
Substantiation: Moving this section to the annex and applying the should allow it to be more flexible when used as an alternative for the manufacture's procedures. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: From data received to date, manufacturers do not provide instruction manuals for fire pump and engines. Therefore, the paragraph and table should remain. Additionally NFPA 25 has greater authority to assure the maintenance is done as scheduled. Some units are not currently receiving the required maintenance, and moving this to the Annex will result in additional units being maintained incorrectly. Further, the NFPA 20 Technical Committee requested the 25 Technical Committee to maintain this data in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
LARRIMER, P.: The manufacturer's instruction should be followed first and this table should be used as alternative when those manufacturer's requirements are not available as proposed by the submitter.

25-164 Log #42 **Final Action: Reject**
(Table 8.1.2)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Move Table 8.1.2 to annex and renumber with modifications as follows:
Table 8.1.2 Move this table to the annex and renumber A.8.1.1.2 as explanatory table 8.1.1.2.
Substantiation: Moving this table to the annex will allow more flexibility when applying alternative procedures the manufacture's procedures. These alternative methods should not be in the body of the code since there are only recommended methods. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: From data received so far, manufacturers do not provide instruction manuals for fire pump and engines. Therefore, the paragraph and table should remain. Additionally NFPA 25 has greater authority to assure the maintenance is done as scheduled. Some units are not currently receiving the required maintenance, and moving this to the Annex will result in additional units being maintained incorrectly. Further, the NFPA 20 Technical Committee requested the 25 Technical Committee to maintain this data in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
LARRIMER, P.: See negative comment on 25-163.

25-165 Log #227 **Final Action: Accept**
(Table 8.1.2)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Electrical System
Grease motor bearings [Check] annually
Grease motor bearings [Change] annually or as needed.
Substantiation: Most new motors now have sealed bearings and are shipped without grease czert fittings installed for field lubrication. Greasing motors without grease czert fittings would cause grease to enter the windings and cause the motors to fail.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-166 Log #229 **Final Action: Reject**
(Table 8.1.2)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Add new text to read as follows:
Mechanical Transmission
Lubricate right-angle gear drive bearings [Change] annually or as needed
Substantiation: There are two types of lubrication required for right-angle gear drives. An oil is used to fill the gear case and a grease is used to lubricate the bearings. The recommended maintenance table should differentiate between case lubrication and bearing lubrication. Please see the attached supplemental data from one of the leading industry suppliers of right-angle gear drives requiring that the oil be changed at least once every six months or after 1200 hours of operation.
Committee Meeting Action: Reject
Committee Statement: Changing the oil lubricates the bearings making this proposed section unnecessary.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-167 Log #230 **Final Action: Accept in Principle**
(Table 8.1.2)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Pump System
Lubricate pump bearings [Check] annually
Lubricate pump bearings [Change] annually or as needed.
Substantiation: More bearings fail due to over greasing than from any other single failure. Adding grease annually arbitrarily may cause premature failure. Bearing lubrication should be check annually and changed annually or as needed.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
pump bearings [Check] Annually.
lubricate pump bearings [Change] As needed"**.**
Committee Statement: Revision should more appropriately clarify Table 8.1.2.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-168 Log #CP3 **Final Action: Accept**
(8.2.2)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise text to read as follows:
8.2.2* The pertinent visual observations specified in the following checklists shall be performed weekly:
(1) Pump house conditions as follows:
(a) Heat is adequate, not less than 40°F (5°C) ~~for pump room with diesel pumps without engine heaters.~~
Substantiation: Pump room temperature maintenance is not a function of a diesel being present, it is to insure the sprinkler water does not freeze. The current language referencing engines and heaters is only adding confusion and needs to be removed.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been rejected. The committee substantiation is incorrect: it has been a known fact for years that a diesel engine without a jacket heater may not "start" in cold weather (ie at 40F). Yes, one concern is the water in the piping freezing but the other concern (missed by the committee) is the fact that the engine may not start if not equipped with a jacket heater.

25-169 Log #197 **Final Action: Reject**
(8.2.2(1))

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Add new text to read as follows:
(1) Pump house conditions as follows: (a) Heat is adequate, not less than 40°F (5°C) for pump rooms with diesel pump without engine heaters. (b) The diesel engine combustion chamber temperature is maintained at 120°F (49°C). (~~b~~)(c) Ventilating louvers are free to operate.
Substantiation: The requirement for maintaining the diesel engine combustion chamber at 120°F (49°C) comes from NFPA #20 11.2.8.2. NFPA #25 has been wrong for some time now.
Committee Meeting Action: Reject
Committee Statement: The addition of (b) is unnecessary since engine heater operation is appropriately confirmed in (4)(m). This requirement does not apply universally to all pumps as older pumps were not required to have a heater.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-170 Log #43 **Final Action: Accept in Principle**
(8.2.2(e))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
8.2.2(e) Suction reservoir ~~is full~~ has the proper water level.
Substantiation: Modification allows for the variances in different manufactures definition of "full". This change also takes into consideration a suction reservoir that may be oversized, and doesn't have to be "full" to meet the system demand for the required duration. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Accept in Principle
Revise text to read as follows:
8.2.2(2)(e) Suction reservoir ~~is full~~ has the ~~proper~~ required water level.
Committee Statement: Editorial.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-171 Log #165 **Final Action: Accept in Principle**
(8.2.3.6)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Delete entire section.
~~8.2.3.6 An automatic timer shall be permitted to be substituted for the starting procedure.~~
Substantiation: This allowance is inconsistent and not practical with the requirement for qualified operating personnel to be in attendance (8.3.2.7) and the observations to be made as specified in 8.3.2.8 which includes such items as recording the pump starting pressure, the time it takes an electric motor to accelerate to rated speed, the time a diesel engine cranks before starting, etc.
Committee Meeting Action: Accept in Principle
Revise 8.2.3.6 to read as follows:
8.3.2.6 An automatic timer that meets 8.3.2.6.1, 8.3.2.6.2, 8.3.2.6.3, and 8.3.2.6.4 shall be permitted to be substituted for the starting procedure.
8.3.2.6.1 A solenoid valve drain on the pressure control line shall be the initiating means for a pressure actuated controller.
8.3.2.6.2 In a pressure actuated controller, performance of this program timer shall be recorded as a pressure drop indication on the pressure recorder.
8.3.2.6.3 In a non-pressure-actuated controller, the test shall be permitted to be initiated by means other than a solenoid valve.
Revise 8.3.2.7 to read as follows:
8.3.2.7 Qualified ~~operating~~ personnel shall be in attendance whenever the pump is in operation.
Committee Statement: This action recognizes the need for qualified personnel to witness the pump operation but maintains some flexibility in streamlining the fire pump test. The technical committee recognizes the difficulty in getting personnel into these rooms during these tests.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
LEAVITT, R.: I believe the proposal should be accepted as originally submitted. We either eliminate the requirement for the pump test to be attended by qualified personnel when using the automatic test feature or we disallow the use of automatic testing.
Comment on Affirmative:
ELVOVE, J.: I want to keep the automatic timer feature, however, per my comment on 25-176, would only do so if there isn't a requirement for qualified operating personnel to be in attendance. But I concur with Mr. Leavitt that we shouldn't offer the option for using automatic timers if we're also requiring someone to be present.

25-172 Log #244 **Final Action: Reject**
(8.3.1.1)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education
Recommendation: Revise text as follows:
Reduce operating test frequency to monthly from weekly
8.3.1.1 Diesel engine–driven fire pumps shall be operated ~~weekly~~ **monthly.**
Substantiation: The education facilities industry would like to re-join a discussion begun last cycle by the US General Services Administration, the US Department of Energy, the US Veteran's Hospital Administration and other large users of this document on the issue of the existing mandatory fixed interval testing for fire pumps; both diesel and electric driven. During the last cycle, the testing frequency was reduced to monthly from weekly for electric-driven fire pumps only. So far, no reports of catastrophic failures, life or property losses, seem to be tracking in the trade literature. The hope is that the money saved was put toward reducing a larger risk elsewhere.
Since we now know from the debate during the last cycle that the first edition of NFPA 25 did not contain substantiation for fire pump testing that was anything more than anecdotally-informed, we feel that is appropriate to raise the level of debate on whether the minimum fixed-interval diesel fire pump operating test should be similarly relaxed.
Our $200 billion (annual) industry is a significant part of the US gross domestic product and we would like to see the fire protection industry innovate upon fire pump technology so that they perform more reliably and at much lower cost. The reasons behind the selection of the prime mover for fire pumps spans a range of choices that recognizes the risks in the availability of power from the local power grid, to the fuel security during a catastrophe. Also, the range of risks within the protected premises may be a warehouse with un-insured contents or a hospital with dense life safety risk. A one-size-fits all, fixed-interval test is not cost effective. There are methods, such as condition-based maintenance, or reliability centered maintenance programs, that are detailed in Annex N of NFPA 70B. (Refer to related proposal regarding adaptation of that Annex in this document.)
Committee Meeting Action: Reject
Committee Statement: This proposal and other proposals regarding the required fire pump testing frequency will be reviewed by a task group who will report back with their recommendations at the ROC. It is anticipated that the Research Foundation's report on the fire pump data collection project will be available before the ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
LARRIMER, P.: The data previously submitted substantiated the change from weekly to monthly.
LEAVITT, R.: I must look at this from a practical point of view since the standard deals with minimum requirements and I believe that a monthly test requirement will raise the level of compliance for some periodic testing of engine driven pump.
SAIDI, J.: The proposal to reduce the test frequency to monthly from weekly should be accepted. This cyclical monthly testing would be consistent with policy already in use by many large and institutional (Federal) owners and users this standard.

25-173 Log #44 **Final Action: Reject**
(8.3.1.2)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
8.3.1.2* Electric motor--driven fire pumps shall be operated ~~monthly~~ weekly.
Substantiation: Weekly run cycle should return to the previous wording of weekly instead of monthly until sufficient data is collected to validate the frequency change. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: This proposal and other proposals regarding the required fire pump testing frequency will be reviewed by a task group who will report back with their recommendations at the ROC. It is anticipated that the Research Foundation's report on the fire pump data collection project will be available before the ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
RAY, R.: For now I can accept the committee's action pending receipt of the Research Foundation's report. Yet I reserve the right to continue this battle if the committee errs as it did in preparing the 2008 edition of this standard.

25-174 Log #325 **Final Action: Reject**
(8.3.1.2)

Submitter: Brett Scharpenter, CB Marketing
Recommendation: Add new text to read as follows:
8.3.1.2 Electric motor-driven fire pumps shall be operated monthly, except as noted.
a). Split case pumps driven by motors of less than 25 HP shall be tested weekly
Substantiation: Field data indicates that a note worthy number of split case fire pumps are discovered in a seized condition during routine inspections/ testing. The underlying cause of seizing appears be corrosion. The secondary cause appears to be directly related to the size of the motor. Motors less than 25HP are unable to break the pump free when attempting to start. These smaller motored split case pumps need to be exercised more than monthly to assure proper operation. The seizing issue does not appear to affect vertical in line pumps with motors less than 25HP.
Committee Meeting Action: Reject
Committee Statement: This proposal and other proposals regarding the required fire pump testing frequency will be reviewed by a task group who will report back with their recommendations at the ROC. It is anticipated that the Research Foundation's report on the fire pump data collection project will be available before the ROC.
The proponent should also provide sufficient documentation on the seized motors to verify the problem and the extent of the problem as it relates to testing frequency. If this is related to use of limited service controllers, a revised limit of 30 hp might be more appropriate in particular.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
RAY, R.: For now I can accept the committee's action pending receipt of the Research Foundation's report. Yet I reserve the right to continue this battle if the committee errs as it did in preparing the 2008 edition of this standard. We are collecting data in the Chicago metropolitan area: so far we have data that shows that 64% of the motors that one contractor replaced were split case pumps with motors 30HP or less, 100% of the motors they were called to "free-up" as they were seized were split case pumps with motors 30HP or less. Another contractor has reported that 50% of the motors they replaced were split case pumps with 30HP or less motors.

25-175 Log #247 **Final Action: Accept in Principle**
(8.3.2.1)

Submitter: John Whitney, Clarke Fire Protection Products, Inc.
Recommendation: Revise text to read as follows:
8.3.2.1 A test of the fire pump assemblies shall be conducted without ~~flowing~~ discharging or re-circulating water.
Substantiation: The recirculation of fire pump water back to pump suction is becoming more and more a problem. We see this problem becoming worse because it is becoming more common and with today engines using this water to cool not just the engine, as in days of old, but also to cool the engine intake air temperature which is critical to conform to the EPA engine emission requirements. It is tolerable to see raw cooling water up to 104F, but we have seen temperatures of 120 to 150F plus. You might stuff enough water through the engine at part load to cool the coolant but you cannot keep the inlet air temperature down to acceptable levels; which results in engine alarms due to the engine intake air being too hot and the engine is operating outside of EPA operational compliance. The engine alarms are viewed as a nuisance and something the alarms systems are defeated resulting in putting the fire pump system reliability at risk.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
8.3.2.1* A test of the fire pump assemblies shall be conducted without ~~flowing~~ re-circulating water back to the pump suction.
A.8.3.2.1 It is not the intent of this section to prevent water required for cooling from flowing through the pump circulation relief valve or diesel engine cooling system. It is the intent to conduct a churn test without any flow through the main pressure relief valve.
Committee Statement: You must have flow in order to keep engine and pump cool. The intent is to conduct a churn test. The new annex text added should help to explain the committee's intent.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
FLEMING, R.: The change to prohibit the design of fire pumps from discharging through the pump circulation relief valve is fairly recent, and this change would present difficulties for many older existing systems.

25-176 Log #248 **Final Action: Accept in Principle**
(8.3.2.7.1 (New))

Submitter: John Whitney, Clarke Fire Protection Products, Inc.
Recommendation: Add text to read as follows:
8.3.2.7.1 The use of the automatic timer allowed in 8.3.2.6 shall not eliminate the requirement of 8.3.2.7 to have qualified operating personnel present during test.
Substantiation: Too many owner/operators are using the timer initiated test to run the test without the presence of a qualified operator.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
8.3.2.7.1 The use of the automatic timer allowed in 8.3.2.6 shall does not eliminate the requirement of 8.3.2.7 to have qualified ~~operating~~ personnel present during test.
Committee Statement: The term operating was removed to correlate with the action taken on proposal 25-171 (Log #165).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
ELVOVE, J.: What's the point of having a timer automatically start the fire pump if there's no permission to start the pump unattended? I recognize that even with rejecting this proposal, that 8.3.2.7 will continue to require "qualified operating personnel" to be in attendance whenever the pump is running, which is the real issue that needs more discussion. Still, there's no need to add this language as it merely restates what's already required.
Comment on Affirmative:
BELL, K.: Editorially, the word "does" should be deleted.
LEAVITT, R.: At least this tries to address the issue but in the end we still have a requirement for attendance that is not logical when associated with an automatic test feature.

25-177 Log #88 **Final Action: Accept in Principle**
(8.3.3.x (New))

Submitter: Zachary L. Magnone, Tyco Fire Protection Products / Rep. Tyco/ Simplex Grinnell
Recommendation: Add a new text into Chapter 8 regarding the proper inspection, testing, and maintenance procedures for positive displacement pumps as follows:
8.3.3. X **Positive Displacement Pumps.** An annual test of each positive displacement pump assembly shall be conducted by qualified personnel under its rated and maximum flow conditions at the system design pressure provided by the owner by controlling the quantity of water or additive discharged through an approved test device.
8.3.3.X.1 The annual test shall be conducted as described in 8.3.3.X.1.1, and 8.3.3.X.1.2, unless otherwise specified by the pump system manufacturer.
8.3.3.X.1.1 **Use of Pump Discharge via Bypass Flowmeter or Orifice Plate to Drain or Suction Reservoir.** Pump suction and discharge pressure and the flowmeter measurements shall determine the total pump output.
8.3.3.X.1.2 **Use of Pump Discharge via Bypass Flowmeter or Orifice Plate to Pump Suction (Closed Loop Metering).** Pump suction and discharge pressure and the flowmeter measurements shall determine the total pump output.
8.3.3.X.3 Where the annual test is conducted in accordance with 8.3.3.X.1.2, a test shall be conducted every 3 years in accordance with 8.3.3.X.1.1 in lieu of the method descried in 8.3.3.X.1.2.
8.3.3.X.4 If an orifice plate is present in the discharge piping, the orifice size and corresponding design discharge pressure to be maintained on the upstream side of the orifice plate shall be provided by the owner.
8.3.3.X.4.1 The actual discharge pressure on the upstream side of the orifice plate shall be recorded and compared to the design discharge pressure.
8.3.3.X.4.2 If the actual discharge pressure on the upstream side of the orifice plate is less than 95% of the design discharge pressure, an investigation shall be performed to determine the cause of the reduced pressure.
Substantiation: Positive displacement pumps are routinely utilized to supply all types of water mist systems – wet pipe, dry pipe, deluge, and preaction. As many of these systems are being installed in lieu of standard sprinkler systems for the same application, it is necessary to ensure they are inspected, tested, and maintained to achieve an equivalent level of dependability. The existing annual flow test requirements of Chapter 8 are unique to centrifugal pumps – e.g. the test to ensure 150% rated capacity at 65% rated head – which are characteristics not mutually inherent to positive displacement pumps. A unique feature of positive displacement pumps is the fact that the flow they supply is directly proportional to driver speed (RPM), and that pressure is typically controlled via a pressure sustaining valve or other regulating bypass device installed downstream of the pump. As a result they exhibit a fairly flat pump curve which ends abruptly once the maximum capacity of the pump is reached. In addition, they do not "churn" in the same manner as a standard fire pump. Therefore, an annual flow test program specific to the key operating characteristics of positive displacement pumps is required. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Insert section 8.3.4 and renumber succeeding paragraphs.
Add 8.3.4.1
Extract all test paragraphs from NFPA 20 Chapter 14.2.5.4.3 through 14.2.5.4.5, resulting in the text noted below: Underlined text is not extracted from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection.
8.3.4 (14.2.5.4.3) Positive Displacement Pumps.
8.3.4.1 Except as provided in 8.3.4.1 through 8.3.4.7 positive displacement pumps shall be tested in accordance with 8.3.1 through 8.3.3
8.3.4.2 (14.2.5.4.3.1) The pump flow for positive displacement pumps shall be tested and determined to meet the specified rated performance criteria where only one performance point is required to establish positive displacement pump acceptability.
8.3.4.3 (14.2.5.4.3.2) The pump flow test for positive displacement pumps shall be accomplished using a flowmeter or orifice plate installed in a test loop back to the supply tank, inlet side of a positive displacement water pump, or to drain.
8.3.4.4 (14.2.5.4.3.3) The flowmeter reading or discharge pressure shall be recorded and shall be in accordance with the pump manufacturer's flow performance data.
8.3.4.5 (14.2.5.4.3.4) If orifice plates are used, the orifice size and corresponding discharge pressure to be maintained on the upstream side of the orifice plate shall be made available to the authority having jurisdiction.
8.3.4.6 (14.2.5.4.3.5) Flow rates shall be as specified while operating at the system design pressure. Tests shall be performed in accordance with HI 3.6, *Rotary Pump Tests*.
8.3.4.7 (14.2.5.4.3.6) Positive displacement pumps intended to pump liquids other than water shall be permitted to be tested with water; however, the pump performance will be affected, and manufacturer's calculations shall be provided showing the difference in viscosity between water and the system liquid.
Committee Statement: Clarifies and ensures that all language from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection is properly extracted.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-178 Log #45 **Final Action: Accept**
(8.3.3.1)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
8.3.3.1* An annual test of each pump assembly shall be conducted by qualified personnel under minimum, rated and ~~peak~~ 150% of the pump rated capacity flows of the fire pump by controlling the quantity of water discharged through approved test devices.

Substantiation: The clarification of 150% instead of peak gives the user a defined meaning to the word (peak). This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
UNDERWOOD, D.: Should read: An annual test of

25-179 Log #46 **Final Action: Accept in Principle**
(8.3.3.1.1)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
8.3.3.1.1 If available suction supplies do not allow flowing of 150 percent of the rated pump capacity, the fire pump shall be permitted to operate at maximum allowable discharge equal to or greater than the system demand as supplied by the owner.
Substantiation: The clarification allows for the maximum discharge rate, but still requires the system demand be met as an acceptable test. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-180 (Log #278).
Committee Statement: See Committee Statement on Proposal 25-180 (Log #278).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-180 Log #278 **Final Action: Accept in Principle**
(8.3.3.1.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise text to read as follows:
8.3.3.1.1 If available suction supplies do not allow flowing of 150 percent of the rated pump capacity, the fire pump shall be permitted to operate at maximum allowable discharge as long as the pump meets the fire protection system demand (as provided by the owner) or the rated flow of the pump, whichever is greater.
Substantiation: The concept of not reaching 150% of the rated flow of the pump during the test has been long established. However, the NFPA 20 committee has recently clarified that they want the pump to at least be capable of reaching the fire protection system demand or the rated flow of the pump, whichever is greater. NFPA 25 should be changed to agree with NFPA 20.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
8.3.3.1.1 If available suction supplies do not allow flowing of 150 percent of the rated pump capacity, the fire pump shall be permitted to be tested to the ~~operate at~~ maximum allowable discharge as long as the pump meets the fire protection system demand (as provided by the owner) or the rated flow of the pump, whichever is greater.
Committee Statement: Clarified that this is an acceptable test.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
ELVOVE, J.: "As provided by the owner" should have been deleted to be consistent with actions taken on other proposals where similar language was proposed (e.g., ROP 25-86, 232, 233, 254, 270, 274). Also note that the purpose of this test is actually to verify the adequacy of a design; this is just one of many requirements within NFPA 25 that go beyond "wear and tear" and set an expectation that equipment will perform as intended (also see ROP 25-188), yet some still purport that NFPA 25 is not a standard that aims to verify design adequacy.
Comment on Affirmative:
LARRIMER, P.: Based upon the committee's prior statements, testing the fire pump to show that it is adequate to meet system demand is not within the scope of this standard? See my negative comments on 25-42 and 25-7, especially the committee statement on 25-42.

25-181 Log #198 **Final Action: Accept in Principle**
(8.3.3.1.2.3)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Add new text to read as follows:
… pump output. When testing in this manor, extreme care shall be taken as the water in the closed loop will increase in temperature and can destroy the equipment.
Substantiation: Several fire pump systems have been damaged by using this form of testing.
Committee Meeting Action: Accept in Principle
Add text to read as follows:
8.3.3.1.2.3.1 When testing includes re-circulating water back to the fire pump suction, the temperature of the re-circulating water shall be monitored to verify that it remains below temperatures that could result in equipment damage as defined by the pump and engine manufacturers..
Committee Statement: Provides better enforcement language as "extreme care" cannot be enforced.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-182 Log #199 **Final Action: Accept**
(8.3.3.1.3)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Add new text to read as follows:
The annual test of each pump assembly, at each flow point, shall apply theoretical factors for the correction to the rated speed and velocity head where determining the compliance of the pump per the test.
Substantiation: The fire pump manufacturer's curves include any applicable speed and velocity head corrections.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
ADAMS, C.: See comments on 25-192 (Log #50).

25-183 Log #47 **Final Action: Accept in Principle**
(8.3.3.2(3) and A.8.3.3.2(3) (New))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
8.3.3.2(3)* For electric motor-driven pumps, the pump shall not be shut down until the pump has run for 10 minutes.
A.8.3.3.2(3) It is not necessary to flow water for the entire duration as long as the flow conditions are met.
Substantiation: Clarification allows for not discharging water during this time, but would allow churn for time stated. In areas with severe water restrictions this would define the intent of the standard more clearly. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Add new **A.8.3.3.2(3)** to mirror language accepted at the NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, ROC meeting for section A.14.2.10 (ROC 20-133).

A.8.3.3.2(3) It is not the intent to discharge water for the full 1 hour test duration, provided all flow tests can be conducted in less time and efforts are taken to prevent the pump from overheating.
Committee Statement: Modifications were made to the proposed language for correlation with NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
ELVOVE, J.: Show the actual text that is being proposed to be added to the annex. Without it, the public (as well as this committee) can not view (and properly ballot) the proposed change.

25-184 Log #48 **Final Action: Reject**
(8.3.3.2(4) and A.8.3.3.2(4) (New))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
8.3.3.2(4)* For diesel motor-driven pumps, the pump shall not be shut down until the pump has run for 30 minutes.
A.8.3.3.2(4) It is not necessary to flow water for the entire duration as long as the flow conditions are met.
Substantiation: Clarification allows for not discharging water during this time, but would allow churn for time stated. In areas with severe water restrictions this would define the intent of the standard more clearly. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: Proposed Annex material offers no additional clarification.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-185 Log #49 **Final Action: Accept in Principle**
(8.3.3.3.2.1 (New))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Add new text to read as follows:
8.3.3.3.2.1 When it is necessary to close the relief valve to achieve minimum rated characteristics for the pump, the discharge indicating gate of butterfly valve shall be closed for the duration of the test.
Substantiation: This action allows for closing the pump discharge valve as to not permit over pressurization of the buildings sprinkler system(s). This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise language as follows:
8.3.3.3.2.1 When it is necessary to close the relief valve to achieve minimum rated characteristics for the pump, the pump discharge control valve shall be closed if the pump churn pressure exceeds the system rated pressure.

Committee Statement: Revised wording provides more clarity while meeting the submitters intent as described in the substantiation.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-186 Log #CP7 **Final Action: Accept**
(8.3.3.3.3 (New))

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Add new section 8.3.3.3.3 to read as follows:
8.3.3.3.3 When pressure relief valves are piped back to the fire pump suction, the temperature of the re-circulating water shall be monitored to verify that it remains below temperatures that could result in equipment damage as defined by the pump and engine manufacturers.
Substantiation: Provides enforceable language to address overheating that can occur if inadequate water for cooling is discharged during any part of the test.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-187 Log #249 **Final Action: Accept in Principle**
(8.3.3.4(3) (New))

Submitter: John Whitney, Clarke Fire Protection Products, Inc.
Recommendation: Revise text to add; Verify that pump continues to perform at peak load on the alternate power source for 10 minutes or 30 minutes if alternate power source is a standby generator set.
Substantiation: During annual tests it is only appropriate that the alternate power source also be tested to assure that circuits and generators be tested to confirm they perform under peak load.
Committee Meeting Action: Accept in Principle
Add peak "horsepower" before "load".
Verify that pump continues to perform at peak horsepower load on the alternate power source for 10 minutes for a alternate utility or 30 minutes if the alternate power source is a standby generator set.
Committee Statement: Clarifies that a standby generator requires a 30 minute test while carrying peak electric motor fire pump horsepower load.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-188 Log #CP5 **Final Action: Accept**
(8.3.5, 8.4)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise sections 8.3.5 and 8.4 to read as follows:
8.3.5 Test Results and Evaluation.
8.3.5.1* Data Interpretation.
8.3.5.1.1 The interpretation of the flow test results and performance relative to system demand requirements shall be the basis for determining acceptable performance of the fire pump assembly.
8.3.5.1.2 Qualified individuals shall interpret the test results.
8.3.5.1.2.1 Interpretation of results shall include review of pump test data and written evaluation of conclusions.
8.3.5.2 Engine Speed Adjustments.
8.3.5.2.1* ~~Theoretical factors for correction to the rated speed shall be applied where determining the compliance of the pump per the test.~~Mathematical adjustment shall be made for correction of recorded test data to the original pump rated speed and velocity head, and shall be applied when determining flow test performance relative to the original pump performance.
A.8.3.5.2.1 Mathematical adjustment is typically completed using Affinity Law calculations based on original and current test speed differences at each test flow point. The original factory pump curves are almost always available from the manufacturer by contacting them with the pump serial number. Manufacturers typically keep this product pump data for perpetuity. The version of the performance curve from the acceptance test that is most useful is the version with the pump running at rated speed. The version of the acceptance test with the pump running at the speed of the manufacturers shop test may not be as valuable since it may not be at the rated speed of the pump and driver on this particular installation.
8.3.5.2.2 ~~Increasing the engine speed beyond the rated speed of the pump at rated condition~~ Modifying engine speed to affect flow during testing shall not be permitted as a method for meeting acceptable pump performance.
8.3.5.2.3.* Net Performance at pump rated speed shall be graphically plotted and evaluated with a comparison to the net pressure curve from owner documents, copies of original manufacturers pump curves, pump nameplate data, or pump retrofit/rebuild documents.
A.8.3.5.2.3 There are rare cases where original fire pump performance data is not available due to lost data, pump/driver replacement, or pump modifications that change discharge. In such cases 8.3.5.3(1) cannot realistically be completed and a flow test should be conducted using previous flow data for comparison. The performance per 8.3.5.3(2) should still be documented.
8.3.5.3 ~~The~~ A fire pump ~~assembly~~ performance flow test shall be considered acceptable ~~if either~~ when both of the following conditions ~~is shown during the test.~~are determined from test results:
(1)* ~~The test~~ Pump flow performance adjusted for speed per 8.3.5.2.1 is no less than 95 percent of the ~~pressure at rated flow and rated speed of the initial unadjusted field acceptance test curve, provided that the original acceptance test curve matches the original certified pump curve by using theoretical factors.~~original specification documentation across the complete flow performance curve.
(2)* ~~The fire pump is no less than 95 percent of the performance characteristics as indicated on the pump nameplate.~~Pump performance unadjusted for speed meets or exceed all requirements for supplied system demands based on owner-supplied system requirements.
A.8.3.5.3(1) ~~See Figure A.8.3.5.3(1)(a) and Figure A.8.3.5.3(1)(b).~~Figure A.8.3.5.3.(1)(a) shows a pump test result plotted on linear graph paper adjusted to rated speed and compared to an original pump performance and the manufacturers test curve. Suction pressure and discharge pressure are also plotted which, when compared to previous results, can aid in determining if a degraded pump discharge is the result of a decreased water supply. Also note, adjusted results of this test closely overlapping which is a good indication that the internal parts of the pump are functioning well (i.e. the pump is performing at or above 95% of the original design specifications per the manufacturers performance curve).
Figure A.8.3.5.2.(1)(b) shows a pump test result plotted on linear graph paper not adjusted to rated speed and compared (plotted with) system demands. This is the true pump output that supplies fire systems and can help clearly show if the actual pump discharge can meet system demands. Suction pressure and discharge pressure are also plotted which, when compared to previous results, can aid in determining if a degraded pump discharge is the result of a decreased water supply.
8.3.5.4* In evaluating adjusted pump flow performance, ~~D~~degradation in excess of 5 percent ~~of the pressure of the initial unadjusted acceptance test curve or nameplate~~ shall require an investigation to reveal the cause of degraded performance. Investigation findings shall be documented through written evaluation as part of the fire pump test documents.
A.8.3.5.4 See Annex C.
8.3.5.5 Current and voltage readings whose product does not exceed the product of the rated voltage and rated full-load current multiplied by the permitted motor service factor shall be considered acceptable.
8.3.5.6 Voltage readings at the motor starter output terminals shall be within 5 percent below or 10 percent above the rated (i.e., nameplate) voltage shall be considered acceptable.
~~**8.3.5.7** The pump performance shall be evaluated using the unadjusted flow rates and pressures to ensure the pump can supply the system demand as supplied by the owner.~~
8.4 Reports.
8.4.1 Any abnormality observed during inspection or testing shall be reported promptly to the property owner or designated representative.
8.4.2* Test results and any documented performance issues shall be recorded and retained for comparison purposes in accordance with Section 4.3.
A.8.4.2 See 8.3.3.4.
8.4.3 All time delay intervals associated with the pump's starting, stopping, and energy source transfer shall be recorded.
8.5 Maintenance.
8.5.1* A preventive maintenance program shall be established on all components of the pump assembly in accordance with the manufacturer's recommendations.
8.5.2 Records shall be maintained on all work performed on the pump, driver, controller, and auxiliary equipment.
8.5.3 The preventive maintenance program shall be initiated immediately after the pump assembly has passed acceptance tests.
Substantiation: This committee proposal was completed after a review of 25-189 (Log #292) which provided the structure for these revisons.The rewrite hopes to clarify the rules with respect to when the data gets adjusted for rated speed and when it does not. It was agreed clarification is currently needed per the original authors comments. However, it was determined further verbiage and distinction between the two distinct required analysis associated with annual fire pump tests was needed for clarity. Thus a CP was developed to cover this submittal and several associated proposals around this topic. The TC will assign a task group to further develop the velocity head adjustments prior to the ROC meeting.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
ADAMS, C.: See comments on 25-192 (Log #50).
LARRIMER, P.: Section 8.3.5.1.1 states
"The interpretation of the flow test results and performance relative to system demand requirements shall be the basis for determining acceptable performance of the fire pump assembly."
Why is the pass/fail determination of the fire pump, which is based on the pumps ability to meet system design criteria, allowed to be within the scope of NFPA 25? Other design criteria such as sprinkler spacing and obstructions are not within the scope of the standard. These are both design issues.
The statistics published by NFPA seem to show that system ineffectiveness (See substantiation on Proposal 25-11) can be attributed to sprinklers design issues such as obstructions or improper spacing just as much if not more than a

pump's failure to meet system a system demand, but the committee claims that addressing sprinkler issues are outside the scope of the standard, yet testing the pump to meet design criteria is within the scope of the standard.
Based upon the committee's prior statements, testing the fire pump to show that it is adequate to meet system demand is not within the scope of this standard? See my negative comments on 25-42 and 25-7, especially the committee statement on 25-42.
Lastly, if a fire pump has degraded more that 5% say, to 90% of the original certified test performance, but it still meets the largest system demand for which it supplies, it should be acceptable. The arbitrary 5% degradation in pump performance should not be used as pass/fail criteria.

RAY, R.: This proposal should have been accepted in part: all references to including "velocity head" should have been struck. Velocity head, though useful in interpreting acceptance test results, it is totally unnecessary in regards to annual test results.

Comment on Affirmative:

ELVOVE, J.: The changes made by the committee may improve the existing intent of the modified sections, however, as Mr. Larrimer points out, the existing intent needs to be revisited as it's not critical for a fire pump to meet all points along its curve, if it still can meet the worse case system demand, which may be far less than the 150% point on the curve. Hence, this section really needs to be revised accordingly.

25-189 Log #292 **Final Action: Accept in Principle**
(8.3.5 and A.8.3.5.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Delete the first paragraph of A.8.3.5.1.

Move the second, third and fourth paragraphs of A.8.3.5.1 to a new annex section A.8.3.3.

Replace 8.3.5 and all of its subsections and annex notes with the following:

8.3.5 Test Results and Evaluation

8.3.5.1 Interpretation

8.3.5.1.1 The interpretation of the test results shall be the basis for determining performance of the pump assembly.
8.3.5.1.2 Qualified individuals shall interpret the test results.
8.3.5.1.3 If the pump turned at rated speed during the test, the results shall be evaluated using the procedure in 8.3.5.2.
8.3.5.1.4 If the pump did not turn at rated speed during the test, the results shall be evaluated using the procedure in 8.3.5.3.

8.3.5.2 Evaluation for Pumps that Turned at Rated Speed During the Test

8.3.5.2.1 The net pressure curve (net pressure as a function of flow) shall be plotted on linear graph paper and shall be evaluated as follows:

(1)* The net pressure curve for this test shall be compared to the net pressure curve from the acceptance test as plotted at rated speed as provided by the owner if available.

(2) The net pressure at the three data points collected during the test shall be compared to the information on the pump nameplate.

(3) The fire pump assembly shall be considered acceptable if either of the following conditions is shown from the test results:

(a) The net pressure at rated flow during the test is at least 95% of the net pressure at rated flow from the original acceptance test at rated speed.

(b) The net pressure at churn, rated flow and maximum flow during the test are all at least 95% of the net pressure indicated for these three flows on the pump nameplate.

(4) The discharge pressure of the pump during the test shall meet or exceed the discharge pressure required for the fire protection system(s) as supplied by the owner.

8.3.5.2.2* Test results from section 8.3.5.2.1 that are not acceptable shall require an investigation to reveal the cause of degraded performance.
8.3.5.2.3 For electric motor driven fire pumps, current and voltage readings shall not exceed the product of the rated voltage and rated full-load current multiplied by the permitted safety factor.
8.3.5.2.4 For electric motor driven fire pumps, the voltage readings at the motor shall be within 5 percent below or 10 percent above the rated (i.e. nameplate) voltage.

8.3.5.3 Evaluation for Pumps that Did Not Turn at Rated Speed During the Test

8.3.5.3.1 The data from the test (net pressure and flow) shall be adjusted using theoretical factors to correct the results to rated speed and the adjusted net pressure curve (net pressure as a function of flow) shall be plotted on linear graph paper and shall be evaluated as follows:

(1)* The adjusted net pressure curve for this test shall be compared to the net pressure curve from the acceptance test as plotted at rated speed as provided by the owner if available.

(2) The adjusted net pressure at the three data points collected during the test shall be compared to the information on the pump nameplate.

(3) The internal components of the pump shall be considered acceptable if either of the following conditions is shown from the test results:

(a) The adjusted net pressure at rated flow during the test is at least 95% of the net pressure at rated flow from the original acceptance test at rated speed.

(b) The adjusted net pressure at churn, rated flow and maximum flow during the test are all at least 95% of the net pressure indicated for these three flows on the pump nameplate.

8.3.5.3.2* Test results from section 8.3.5.3.1 that are not acceptable shall require an investigation to reveal the cause of degraded performance.
8.3.5.3.3* If the rotation of the pump was more than ±10% of the rated speed, the assembly shall not be considered acceptable.
8.3.5.3.4 The unadjusted discharge pressure of the pump during the test shall meet or exceed the discharge pressure required for the fire protection system(s) as supplied by the owner.
8.3.5.3.5 For electric motor driven fire pumps, current and voltage readings shall not exceed the product of the rated voltage and rated full-load current multiplied by the permitted safety factor.
8.3.5.3.6 For electric motor driven fire pumps, the voltage readings at the motor shall be within 5 percent below or 10 percent above the rated (i.e. nameplate) voltage.
A.8.3.5.2.1(1) The owner should have retained the performance curve from the acceptance test. The version of the performance curve from the acceptance test that is most useful is the version with the pump running at rated speed. The version of the acceptance test with the pump running at the speed of the manufacturers shop test may not be as valuable since it may not be at the rated speed of the pump and driver on this particular installation. If the owner has the acceptance test data with the pump running at rated speed, this can be used directly for comparison for this test. If the owner has the acceptance test data for the pump running at the manufacturers shop speed, the data can be adjusted to rated speed, and this adjusted data used as the baseline for future pump performance.
Figure A.8.3.5.2.1(1) shows the results from a pump test with the unadjusted pump test data on linear graph paper. While NFPA 25 only requires the plot of the net pressure, it is helpful to plot the suction pressure and discharge pressure as shown in the figure. Note that the system demands are below the discharge curve, making the pump assembly acceptable from this perspective.
Figure A.8.3.5.2.1(1) <old figure A.8.3.5.3(1)(b)>
A.8.3.5.2.2 See Annex C.
A.8.3.5.3.1(1) The owner should have retained the performance curve from the acceptance test. The version of the performance curve from the acceptance test that is most useful is the version with the pump running at rated speed. The version of the acceptance test with the pump running at the speed of the manufacturers shop test may not be as valuable since it may not be at the rated speed of the pump and driver on this particular installation. If the owner has the acceptance test data with the pump running at rated speed, this can be used directly for comparison for this test. If the owner has the acceptance test data for the pump running at the manufacturers shop speed, the data can be adjusted to rated speed, and this adjusted data used as the baseline for future pump performance.
Figure A.8.3.5.3.1(1) shows the results from a pump test with the pump test data on linear graph paper adjusted to rated speed. While NFPA 25 only requires the plot of the net pressure, it is helpful to plot the suction pressure and discharge pressure as shown in the figure. There are actually five curves on the figure with two of them (a recent field test and the adjusted results of this test) so closely overlapping, they are difficult to distinguish from each other. The fact that these curves are so close is a good indication that the internal parts of the pump are functioning well.
Figure A.8.3.5.3.1(1) <old Figure A.8.3.5.3(1)(a)>
A.8.3.5.3.2 See Annex C.
A.8.3.5.3.3 While the adjusted pump data may show that the internal working parts of the pump are functioning correctly, it does not mean that the pump assembly is acceptable. If the pump is turning too fast, it will overpressurize the system. If the pump is turning too slow, the proper system pressure may never be reached. Neither one of these conditions would be indicated by looking at the adjusted data from the pump test. Therefore, this extra step was inserted in the analysis. If the pump is running close to rated speed (within 10%) it should be close enough to expected performance so that it is not a problem. NFPA 20 requires the system to be designed to handle the pressure if the pump runs as high as 10% over rated speed. But if the pump turns faster than 10% over rated speed, or more than 10% below rated speed, it will need to be adjusted so that it runs at rated speed.

Substantiation: The first part of A.8.3.5.1 has been incorporated into the rewrite. The rest of A.8.3.5.1 is more appropriate for the test requirements (calibration of test equipment) than it is for the evaluation of the data after the test is run. If you run the test with equipment that is not calibrated, it is too late by the time the data evaluation is being conducted to fix the problem.

The rewrite hopes to clarify the rules with respect to when the data gets adjusted for rated speed and when it does not. There has been a great deal of confusion on this point. Right now, the standard contradicts itself by stating in section 8.3.5.2.1 that the data always has to be correct to rated speed for the comparison. But then sections 8.3.5.4 and 8.3.5.7 say that the unadjusted data needs to be used.

The reality is that both conditions need to be dealt with at different times depending on the outcome of the test. The rewrite hopes to straighten out when data needs to be adjusted and when it does not by splitting the evaluation section into two parts. One part is used when the pump runs at rated speed during the test, the other part for when it does not. By splitting the evaluation, it becomes more clear how and when to make the adjustments to rated speed.

The rewrite attempts to keep the requirements consistent with the intent of the previous editions, while clarifying that intent.

Committee Meeting Action: Accept in Principle

Committee Statement: See committee action on 25-188 (Log #CP5). Section 8.3.5.1.3 requires rated speed to be determined. Since this vary across all flow points, test would be done before criteria for RPM measurement is determined. Currently, and with committee proposal, wording is similar but requires test record data from start of test.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-190 Log #138 **Final Action: Reject**
(8.3.5.1.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise section 8.3.5.1.1 as follows:
8.3.5.1.1 The interpretation of the test results shall be the basis for determining ~~performance~~ the pass/fail criteria of the fire pump ~~assembly~~ system.
Substantiation: The intent of a NFPA 25 test of a fire pump is not to determine if the pump assembly alone is performing satisfactorily, but is to determine if the entire fire pump system will meet the demand of the fire protection system. There are actually two criteria the fire pump has to meet, to be within 95% of the name plate rated pressure and flow, and meet system demand. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The requirement of a Qualified Person to look at the results indicates the test is to determine not just pass/fail but overall pump performance by investigating any abnormalities and associated system demands.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-191 Log #200 **Final Action: Accept in Principle**
(8.3.5.1.2)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Add new text to read as follows:
… test results~~.~~ and make a specific written evaluation of the system.
Substantiation: The testing means nothing unless a written report is made to evaluate the equipment.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-188 (Log #CP5).
Committee Statement: See Committee Statement on Proposal 25-188 (Log #CP5).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-192 Log #50 **Final Action: Reject**
(8.3.5.2.1)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Delete 8.3.5.2.1:
8.3.5.2.1 ~~Theoretical factors for corrections to the rated speed shall be applied where determining the compliance of the pump per the test.~~
Substantiation: Periodic test results per this standard are not theoretical and should not be adjusted by any theoretical factors. Theoretical factors are required to be applied for acceptance testing per NFPA 20, but not this standard. Modifications allows reference to NFPA 20 for which the standard for compliance of the pump should be stated. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group
Committee Meeting Action: Reject
Committee Statement: See Committee Action on Proposal 25-188 (Log #CP5). The language accepted in this log requires Mathematical adjustments to be made for correction of recorded test data to the original pump rated speed and velocity head.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
ADAMS, C.: I agree with the the proposal to delete the requirement for the use of theoretical factors. Small differences in speed have negligible affect on the discharge of the pump and correction factors are also negligible. If there are significant differences in speed, this will be reflected in the discharge and appropriate action is already required. The use of theoretical ("mathematical") factors create needless calculations and can be prone to mathematical errors resulting in pumps being rated deficient when they are not. Once the pump is acceptance tested, there should no longer be a need to apply theoretical factors.

25-193 Log #201 **Final Action: Accept in Principle**
(8.3.5.2.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
…rated speed and velocity shall be applied…
Substantiation: The fire pump manufacturer's curves include any applicable speed and velocity head corrections.
Committee Meeting Action: Accept in Principle
Add to 25-188 (Log #CP5) the term "velocity head" following "rated speed" in 8.3.5.2.1
Committee Statement: The technical committee agreed that adding the velocity concept was important and that it was necessary to modify 25-188 (Log #CP5) to include this concept. The more specific term velocity head was used in lieu of simply velocity.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-194 Log #232 **Final Action: Accept in Principle**
(8.3.5.2.1 and A.8.3.5.2.1)

Submitter: James M. Feld, University of California
Recommendation: Delete Section 8.3.5.2.1
8.3.5.2.1* ~~Theoretical factors for correction to the rated speed shall be applied where determining the compliance of the pump per the test.~~ Where the speed of the driver during a test varies from the rated speed of the driver, the test flow rates and pressures shall be corrected as allowed by NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection.
A.8.3.5.2.1 Extract Section A.14.2.5.4(f) from NFPA 20
8.3.5.2.1.1 A test curve (flow versus pressure) shall be prepared showing the results of the current test and the manufacturer's shop test results or the test points shown on the pump nameplate. Any significant deviation shall be cause for investigation and correction.
Substantiation: The term "theoretical factors" is not defined. The intent was to use the correction procedure as shown in NFPA 20 sometime referred to as the affinity laws. When the test speed of the pump is different from the certified shop test curve, the test pressures and flow rates must be corrected in order to compare the test results to the manufacturer's shop test results. A variation in the test results may be used to identify a problem in the fire pump. Use of the correction procedure (affinity laws) to determine compliance is inappropriate. The fire pump must be capable of satisfying the fire protection system demand, hopefully with a safety factor.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-188 (Log #CP5).
Committee Statement: See Committee Statement on Proposal 25-188 (Log #CP5).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-195 Log #139 **Final Action: Accept in Principle**
(8.3.5.3)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add section title to 8.3.5.3 as shown.
8.3.5.3 Test Pass/Fail Criteria
Renumber current sections as follows: 8.3.5.3 as 8.3.5.3.1; 8.3.5.4 as 8.3.5.3.2; 8.3.5.5 as 8.3.5.3.3; 8.3.5.6 as 8.3.5.3.4; and 8.3.5.7 as 8.3.5.3.5.
Substantiation: The current structure in this section is confusing. The pass/fail criteria should have a separate section title so it's easy to find, and it stands out when searching the document. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-188 (Log #CP5).
Committee Statement: See Committee Statement on Proposal 25-188 (Log #CP5).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-196 Log #233 **Final Action: Accept in Principle**
(8.3.5.3 and 8.3.5.7)

Submitter: James M. Feld, University of California
Recommendation: Revise text to read as follows:
8.3.5.3 The fire pump assembly shall be considered acceptable if either of the following conditions is shown during the test provided the pump is capable of supplying the system demand using unadjusted flow rates and pressures as provided by the owner:
(1)* The unadjusted test results are ~~test is~~ no less than 95 percent of the pressure at rated flow and rated speed of the initial unadjusted field acceptance test curve, provided that the original acceptance test curve matches the original certified pump curve by using the correction procedure identified in NFPA 20 ~~theoretical factors~~.
(2) ~~The fire pump is~~ The unadjusted test results are no less than 95 percent of the performance characteristics as indicated on the pump nameplate.
~~8.3.5.7 The pump performance shall be evaluated using the unadjusted flow rates and pressures to ensure the pump can supply the system demand as supplied by the owner.~~
Substantiation: It is important that the fire pump is capable of supplying the system demand whether it is a fire sprinkler system, standpipe system, fire hydrants, etc. If the test results are within 95% of the initial acceptance test (unadjusted data) but less than the system demand, the test must be considered a failure and in need of correction. "Theoretical factors" is not defined. Section 8.3.5.7 is deleted because it is incorporated into Section 8.3.5.3.

Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-188 (Log #CP5).
Committee Statement: See Committee Statement on Proposal 25-188 (Log #CP5).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-197 Log #51 **Final Action: Accept in Principle**
(8.3.5.3(1))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
8.3.5.3(1)* The test is no less than 95 percent of the pressure at rated flow and rated speed of the initial unadjusted field acceptance test curve, ~~provided that the original acceptance test curve matches the original certified pump curve by using theoretical factors.~~
Substantiation: Modification removes the use of theoretical factors when reviewing the results of the annual performance test. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-188 (Log #CP5).
Committee Statement: See Committee Statement on Proposal 25-188 (Log #CP5).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-198 Log #203 **Final Action: Accept**
(8.3.5.6)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
… at the motor starter output terminals shall be with 5% below…
Substantiation: The section needs to be modified to match the action taken by the NFPA #20 TC.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-199 Log #204 **Final Action: Accept**
(8.5.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
…manufacturer's recommendations and table 8.1.2.
Substantiation: Adds clarification
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-200 Log #250 **Final Action: Reject**
(8.5.4 and A.8.5.4.1 (New))

Submitter: John Whitney, Clarke Fire Protection Products, Inc.
Recommendation: Add text to read as follows:
8.5.4 Fuel Maintenance.
8.5.4.1* The diesel fuel stored in the fuel supply tank shall be maintained to insure the quality of the fuel does not degrade while in storage.
A.8.5.4.1 Commercial distillate fuel oils used in modern diesel engines are subject to various detrimental effects from storage. The origin of the crude oil, refinement processing techniques, time of year, and geographical consumption location all influence the determination of fuel blend formulas. Naturally occurring gums, waxes, soluble metallic soaps, water, dirt, blends and temperature all contribute to the degradation of the fuel as it is handled and stored. These effects begin at the time of fuel refinement and continue until consumption. Proper maintenance of stored distillate fuel is critical for engine operation, efficiency, and longevity.
Storage tanks should be kept water-free. Water contributes to steel tank corrosion and the development of microbiological growth where fuel and water interface. This and the metals of the system provide elements that react with fuel to form certain gels or organic acids, resulting in clogging of filters and system corrosion.
Scheduled fuel maintenance helps to reduce fuel degradation. Fuel maintenance filtration can remove contaminants and water and maintain fuel conditions to provide reliability and efficiency for standby fire pump engines. Fuel maintenance and testing should begin the day of installation and first fill.
8.5.4.1.1 Where environmental or fuel quality conditions result in degradation of the fuel while stored in the supply tank, from items such as water, micro-organisms and particulates, or destabilization, a listed active fuel maintenance system shall be retrofit installed to maintain fuel quality.
8.5.4.1.1.1 When an external active fuel maintenance system is retrofit installed per paragraph 8.5.4.1.1 or NFPA 20 paragraph 11.6.4 it shall be installed in accordance with NFPA 20 paragraph 11.6.4.
8.5.4.2 Fuel shall be tested at minimum annually to insure the quality of the fuel.
8.5.4.3 Fuel additives and EPA Registered biocide shall be added as recommended by the fuel supplier and active fuel maintenance system supplier, or as a result of test results, to insure the quality of the fuel maintained while in storage.
Add new item in Table 8.1.2 under *Fuel*; 'Fuel Condition' and put an X in the Test column and put 'Annually' in the Frequency column
Substantiation: The characteristics of diesel fuel are changing and proper storage is becoming extremely important to insure reliable operation of engines. Even when the proper fuel has been purchased and put into the fuel storage tank long term reliability can not be assumed. For reasons as explained in the proposed annex text, and governmental mandated addition of various blends of bio-fuel, diesel fuel is requiring additional attention to insure reliable use in diesel engines for stand-by service.
This Proposal is in concert with actions taken by NFPA 20 TC for the 2013 revision which will require an active fuel maintenance system on all new installations. It is only appropriate that maintenance programs for existing installations test fuel for degradation and where degradation is found to be present an appropriate active system maintenance system as define by NFPA 20 be installed.
Committee Meeting Action: Reject
Committee Statement: How many instances of this condition have occurred to require the action? The Proponent is encouraged to submit supporting data for the ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
FIELD, G.: I believe all on the Committee recognize the importance of the reliability of diesel fire pumps. I encourage the submitter to provide additional supporting data for this problem. I question if fuel problems would be found in the weekly test?
FULLER, D.: The need to monitor and maintain the quality of stored diesel fuel is critical to the reliability of the diesel engine. Degradation of fuel can cause starting, running, and performance problems. The submitters intent is valid and should be supported at the ROC. I believe requiring the installation of a fuel maintenance system was the issue that made this unacceptable to the committee. I would support the remaining language that requires periodic testing and the needed to maintain the fuel.

25-201 Log #3 **Final Action: Accept in Principle**
(8.6.1)

Note: This proposal appeared as Comment 25-79 (Log #65) which was held from the Annual 2010 ROC on Proposal 25-146.
Submitter: William F. Stelter, Master Control Systems, Inc
Recommendation: Revise text to read as follows:
Accept ROP wording with the following changes:
Electrical System/Controller
Critical electronic component or module that can prevent the controller from starting or running.
Non-critical electronic component or module
Substantiation: Clarifies what is meant by a critical or non-critical component.
Committee Meeting Action: Accept in Principle
Revise table as shown on the following page:
Committee Statement: Provides additional guidance to the user but conceptually the revisions achieve similar results.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

Component	Adjust	Repair	Rebuild	Replace	Test Criteria
Electrical System/Controller					
Entire controller		~~X~~	~~X~~	X	Perform acceptance test in accordance with NFPA 20
Electronic component or module that can prevent the controller from starting or running.			X	X	Perform acceptance test in accordance with NFPA 20
Electronic component or module that will not prevent the controller from starting or running			X	X	Perform weekly in accordance with NFPA 25
Plumbing part				X	Perform weekly test test in accordance with NFPA 25

25-202 Log #205 **Final Action: Reject**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Cooling system [Repair] [Rebuild] [Replace] Perform test in accordance with ~~8.3.2~~ 8.3.3
Substantiation: The engine cooling rate varies as the load on the diesel driver changes. If the diesel engine is only operated at churn we are not truly testing to ensure that the heat transfer from the engine to the cooling water is acceptable. 30-minutes of operation is adequate to bring the engine up to running temperature. However, without loading the driver we can never know if the engine can stay cool while fighting a fire at load.
Committee Meeting Action: Reject
Committee Statement: Annual test is too rigorous of a test for this activity. This language came from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, and there has not be any technical substantiation to revise these requirements. If there are certain components that need to undergo an annual flow test because there is statistical data supporting this need, please send data to technical committee for review at ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Agree with submitter's proposal.
UNDERWOOD, D.: Agree with submitter. The cooling loop has pressure regulating valve switch must under full engine horsepower load.

25-203 Log #206 **Final Action: Reject**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Fuel injector pump [Adjust] [Replace] Perform test in accordance with ~~8.3.2~~ 8.3.3
Substantiation: The fuel injector pump varies the amount of fuel supplied as the load on the driver changes. If the injector pump is adjusted or replaced the proper test is an annual flow test where the load on the driver will change and the speed can be verified to be within NFPA 20 11.2.4.1.1 tolerance (10% droop).
Committee Meeting Action: Reject
Committee Statement: Annual test is too rigorous of a test for this activity. This language came from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, and there has not be any technical substantiation to revise these requirements. If there are certain components that need to undergo an annual flow test because there is statistical data supporting this need, please send data to technical committee for review at ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Agree with submitter's proposal.
UNDERWOOD, D.: Agree with submitter. To check the engine rpm you must check at varying loads, the fuel pump can cause major problems.

25-204 Log #207 **Final Action: Accept**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Incomming power conductors [Replace] Perform a 1-hour full-load current test including six starts at peak load
Substantiation: The load carrying wiring builds heat as energy passes through. The wirign can only be truely tested after energy has passed through the conductors and they have achieved a higher than ambient temperature. The largest amperage draw on the conductors would be at fire pump start-up. The most strict test of the conductors would be starting under peak load six times after 1-hour of run time.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-205 Log #208 **Final Action: Accept in Principle**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Electric motor [Repair] [Rebuild] [Replace] Perform acceptance test in accordance with NFPA 20 with alignment check
Substantiation: When the electric motor is bolted down to the structural steel base the driver and pump shafts could be as much as 1/8" off. The holes through the feet of the motor allow for some movement. A dial indicator or laser alignment check should be required in addition to acceptance test to ensure proper installation.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
Electric motor [Repair] [Rebuild] [Replace] Perform acceptance test in accordance with ~~NFPA 20~~ NFPA 25 8.3.3 including alignment tests.
Committee Statement: Section number within NFPA 25 added for clarity.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-206 Log #209 **Final Action: Accept in Principle**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Circuit breaker [Replace] Perform 1-hour full-load current test including six starts at peak load
Substantiation: The circuit breaker internal components build heat as energy passes through the device. The circuit breaker can only be truely tested after the device has been operated. The largest amperage draw that the circuit breaker would realize would be at fire pump start-up. The most strict test of the circuit breaker would be starting under peak load after 1-hour of run time.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
Circuit breaker [Replace] Perform 1-hour full-load current test in accordance with NFPA 25 8.3.3 including six starts at peak load.
Committee Statement: Section number within NFPA 25 added for clarity.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-207 Log #210 **Final Action: Accept in Principle**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Main contactor [Repair] ~~Perform test in accordance with 8.3.2~~
Main contactor [Repair] [Replace] Perform acceptance test in accordance with NFPA 20
Substantiation: A repair of the main contactor could be a magnetic coil or contacts. The magnetic coil within the main contactor and the contacts when replaced or cleaned should be checked at peak load to be tested thoroughly. An acceptance test ensures that the fire pump is operated for at least an 1-hour duration and tested at peak load.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
Main contactor [Repair] [Replace] Perform test in accordance with 8.3.2 with six starts.
~~Main contactor [Replace] Perform acceptance test in accordance with NFPA 20~~
Committee Statement: Acceptance test is not required, but 6 starts is appropriate.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-208 Log #211 **Final Action: Accept**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Power monitor [Replace] ~~Perform test in accordance with 8.3.2~~ Perform six operations of the circuit breaker / isolation switch disconnect (cycle the power on/off)
Substantiation: The churn test requirement per 8.3.2 doesn't require the control panel power to be cycled on/off. A churn test in accordance with 8.3.2 does not test functionality of this device.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-209 Log #212 **Final Action: Accept in Principle**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Start relay [Replace] ~~Perform test in accordance with 8.3.2~~ Perform six momentary starts in accordance with NFPA 20
Substantiation: The churn test requirement per 8.3.2 requires the control panel to automatically start just one time. A more thorough test of the start relay when replaced should require several sequential successful starts to ensure reliability.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
Start relay [Replace] Perform test in accordance with 8.3.2 with six starts.
Committee Statement: Committee wants to maintain reference to 8.3.2 within NFPA 25 as it is a maintenance activity.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-210 Log #213 **Final Action: Accept**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Pressure transducer [Adjust] [Replace] ~~Perform acceptance test in accordance with NFPA 20~~ Perform six automatic no-load starts
Substantiation: The acceptance test requirement for adjusting / changing the pressure transducer adds no value over a churn test with automatic starts. The pressure transducer is a non-load carrying component and a proper test can be conducted without water flow.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-211 Log #214 **Final Action: Accept in Principle**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Transfer switch – load carrying parts [Repair] [Rebuild] [Replace] Perform a 1-hour full-load current test, six momentary starts at peak load, and transfer from normal power to emergency power and back one time
Substantiation: The load carrying transfer switch parts now include a circuit breaker per the new FM requirement in 2010. The internal components of the circuit breaker build heat as energy passes through the device. The circuit breaker can only be truely tested after the device has been operated. The largest amperage draw that the circuit breaker would realize would be at fire pump start-up. The most strict test of the circuit breaker would be starting under peak load six times after 1-hour of run time in addition to one power transfer.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
Transfer switch – load carrying parts [Repair] [Rebuild] [Replace] Perform a 1-hour full-load current test, six starts at peak horse power load, and transfer from normal power to emergency power and back one time.
Committee Statement: Modifications were editorial to further clarify that the peak load is referring to horse power load. The word momentary is not needed.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-212 Log #215 **Final Action: Accept in Principle**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Entire controller ~~[Repair] [Rebuild]~~ [Replace] Perform acceptance test in accordance with NFPA 20
Substantiation: The terms repair an entire controller or rebuild an entire controller are too vague. The balance of the Electrical System / Controller section goesnto more detail about the testing required for individual controller component repair or rebuild.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-201 (Log #3).
Committee Statement: See Committee Statement on Proposal 25-201 (Log #3).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-213 Log #216 **Final Action: Accept**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Casing [Repair] [Replace] Perform acceptance test in accordance with NFPA #20 with alignment check
Substantiation: When the fire pump casing is bolted down to the structural steel base the driver and pump shafts could be as much as 1/8" off. The holes through the feet of the fire pump allow for some movement. A dial indicator or laser alignment check should be required to ensure proper installation.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-214 Log #217 **Final Action: Reject**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Pump room suction / discharge pipe [Repair] [Replace] Perform visual inspection and a test in accordance with ~~8.3.3.7~~ 8.3.3 with alignment check
Substantiation: 8.3.3.7 is a broken reference. When piping is repaired or replaced it can relax when uncoupled from adjacent flanges or fittings. When the piping is reconnected it could pull the fire pump out of alignment with the driver. A visual inspection is not enough to determine if the pump has moved out of place. A dial indicator or laser alignment check should be required in addition to annual test to ensure proper installation.
Committee Meeting Action: Reject
Committee Statement: The broken reference was corrected as part of Proposal 25-220 (Log #CC6). The alignment check exceeds level of effort required to conduct an "inspection".
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Agree with submitter's proposal.
UNDERWOOD, D.: Agree with submitter. When using jack and crowbars to move the piping there can be a lot of strain put on the pump.

25-215 Log #218 **Final Action: Reject**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Pump room suction / discharge valves [Repair] [Rebuild] [Replace] Perform visual inspection and a test in accordance with ~~8.3.3.7~~ 8.3.3 with alignment check
Substantiation: 8.3.3.7 is a broken reference. When valves are repaired, rebuilt or replaced they can allow the adjacent piping to relax when uncoupled. When the piping is reconnected it could pull the fire pump out of alignment with the driver. A visual inspection is not enough to determine if the pump has moved out of place. A dial indicator or laser alignment check should be required in addition to annual test to ensure proper installation.
Committee Meeting Action: Reject

Committee Statement: Annual test is too rigorous of a test for this activity. This language came from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, and there has not be any technical substantiation to revise these requirements. The reference is not broken.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Agree with submitter's proposal.
UNDERWOOD, D.: Agree with submitter. See comment on 25-214.

25-216 Log #219 **Final Action: Reject**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Pump room suction / discharge valves [Repair] [Rebuild] [Replace] Perform visual inspection and a test in accordance with ~~8.3.3.7~~ 8.3.3 and 13.3.3.1 with alignment check
Substantiation: 8.3.3.7 is a broken reference. When valves are repaired, rebuilt or replaced they can allow the adjacent piping to relax when uncoupled. When the piping is reconnected it could pull the fire pump out of alignment with the driver. A visual inspection is not enough to determine if the pump has moved out of place. A dial indicator or laser alignment check should be required in addition to annual test to ensure proper installation. A test of the full range of motion of the valve(s) should also be completed to ensure that the internal components of the valve(s) are not binding up against the adjacent fittings.
Committee Meeting Action: Reject
Committee Statement: Annual test is too rigorous of a test for this activity. This language came from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, and there has not be any technical substantiation to revise these requirements. If there are certain components that need to undergo an annual flow test because there is statistical data supporting this need, please send data to technical committee for review at ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
UNDERWOOD, D.: Agree with submitter. See comment on 25-214.

25-217 Log #220 **Final Action: Reject**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Base plate [Repair] [Replace] Perform test in accordance with ~~8.3.2~~ 8.3.3 with alignment check
Substantiation: The fire pump and driver while operating under load will create more axial and radial thrusts than when operating at churn. The true test of the base plate should include some degree of load testing.
Committee Meeting Action: Reject
Committee Statement: Annual test is too rigorous of a test for this activity. This language came from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, and there has not be any technical substantiation to revise these requirements. If there are certain components that need to undergo an annual flow test because there is statistical data supporting this need, please send data to technical committee for review at ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Agree with submitter's proposal.
UNDERWOOD, D.: Agree with submitter. When replacing a base you have a new installation and if we go to NFPA 20 an acceptance test would be required.

25-218 Log #222 **Final Action: Accept**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Steam regulator or source upgrade [Repair] [Replace] Perform ~~annual~~ acceptance test in accordance with NFPA 20.
Substantiation: The steam regulator effects the way that the entire system operates. This is a critical component to the steam turbine and shall require an acceptance test to ensure reliability.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
SHEPPARD, J.: Agree with submitter's proposal.

25-219 Log #228 **Final Action: Reject**
(8.6.1)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Drive coupling [Adjust] ~~[Repair] [Rebuild] [Replace]~~ Perform test in accordance with 8.3.2
Drive coupling [Repair] [Rebuild] [Replace] Perform acceptance test in accordance with NFPA 20 with alignment check
Substantiation: When the drive coupling is adjusted it can be as simple as retightening a set screw through the t-hub into the shaft key. This service would not cause either shaft to move. However, if the coupling insert was repaired, if the coupling was rebuilt or replaced either the fire pump of driver would have to temporarily be moved to facilitate the removal of the t-hubs, grid or insert. A dial indicator or laser alignment check should be required to ensure proper installation.
Committee Meeting Action: Reject
Committee Statement: Annual test is too rigorous of a test for this activity. This language came from NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, and there has not be any technical substantiation to revise these requirements. If there are certain components that need to undergo an annual flow test because there is statistical data supporting this need, please send data to technical committee for review at ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
UNDERWOOD, D.: Agree with submitter.

25-220 Log #CP6 **Final Action: Accept**
(8.6.1)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise the two references to 8.3.3.7 in Table 8.6.1 to "8.2.2". This occurs twice under the heading for "Pump House and Miscellaneous Connections"
Substantiation: As identified in Proposals 25-214 (Log #217) and 25-215 (Log #218) these references are broken. This CP aims to correct the reference to the visual inspection portion of this chapter.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
SHEPPARD, J.: Agree with submitter's proposal.

25-221 Log #223 **Final Action: Accept in Principle**
(8.6.2)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
…component replacement. The most stringent test requirements between NFPA 20 and 25 shall be followed.
Substantiation: Adds clarification
Committee Meeting Action: Accept in Principle
Revise to read as follows:
8.6.2 NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, shall be consulted for the minimum requirements for design, ~~and~~ installation, and ~~including~~ acceptance testing. ~~and component replacement.~~
Committee Statement: It is the intent to reference NFPA 20 for design and installation issues, and whenever component replacement warrants a full acceptance test.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-222 Log #224 **Final Action: Accept in Principle**
(8.6.3)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Replacement parts shall be provided that will maintain the listing for the fire pump component assembly whenever possible. If the part is no longer available from the original equipment manufacturer than a like part that has been approved by a listing organization for a different manufacturer.
Substantiation: In most cases component replacement falls under the scope of NFPA 25. The pertinent information from NFPA 20 must be moved to NFPA 25.
Committee Meeting Action: Accept in Principle
Add a new section to read:
8.6.3 Replacement parts shall be provided that will maintain the listing for the fire pump component assembly whenever possible.
8.6.3.1 If the part is no longer available from the original equipment manufacturer then an approved like part shall be permitted to be used.
Committee Statement: The recommended action was unclear and the language was incomplete. Separated into 2 requirements for MOS.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-223 Log #225 **Final Action: Reject**
(8.6.4)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Revise text to read as follows:
Critical path components include the following features of the pump equipment: (1) Fire pumps (a) impeller, casing, shaft (b) Gear drives (2) Fire pump controllers (electric or diesel): total replacement (3) Electric motor, steam turbines, or diesel engine drivers (a) Electric motor replacement (b) Steam turbine replacement ro rebuild (c) Steam regulator or source upgrade (d) Engine replacement or engine rebuild.
Substantiation: In most cases component replacement falls under the scope of NFPA 25. The pertinent information from NFPA 20 must be moved to NFPA 25.
Committee Meeting Action: Reject
Committee Statement: The proposal does not contain any requirements. These issues will be reviewed by a task group prior to the ROC.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-224 Log #226 **Final Action: Reject**
(8.6.5)

Submitter: Damon T. Pietraz, Underwood Fire Equipment, Inc.
Recommendation: Add new text to read as follows:
Whenever replacement, change, or modification to a critical path component is performed on a fire pump, driver, or controller as described in table 8.6.1, a retest shall be conducted as indicated in the table by the pump manufacturer, factory authorized representative, or qualified persons acceptable to the authority having jurisdiction.
Substantiation: In most cases component replacement falls under the scope of NFPA 25. The pertinent information from NFPA 20 must be moved to NFPA 25 and the sections renumbered correctly.
Committee Meeting Action: Reject
Committee Statement: This concept is already covered by 4.1.4.2.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-225 Log #279 **Final Action: Accept**
(9.2.1.1 and 9.2.1.2)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add new text to read as follows:
9.2.1.1* The water level in ~~T~~tanks equipped with...
9.2.1.2 The water level in ~~T~~tanks not equipped with...
Substantiation: It's the water level that needs to be inspected, not the tank.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-226 Log #280 **Final Action: Accept**
(9.2.2.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add "The air pressure in" to the beginning of 9.2.2.1 so that it reads as follows:
9.2.2.1 The air pressure in ~~P~~pressure tanks...
Substantiation: It's the air pressure that needs to be inspected, not the pressure tank. Section 9.2.2.2 got this correct and the previous section needs to be consistent.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-227 Log #4 **Final Action: Reject**
(9.2.4)

Submitter: James Whitehead, Los Alamos National Laboratory
Recommendation: Add new text as follows:
9.2.4.1 The temperature of water tanks shall not be less than 40°F (4.4°C).
9.2.4.2 The temperature of water tanks with low temperature alarms connected to a constantly attended location shall be inspected and recorded monthly during the heating season when the mean temperature is less than 40°F (4.4°C).
9.2.4.3 The temperature of water in tanks without low temperature alarms connected to a constantly attended location shall be inspected and recorded weekly during the heating season when the mean temperature is less than 40°F (4.4°C).
Substantiation: I propose that the committee agree on what is the acceptable temperature to heat water tanks 40°F or 42°F. It is obvious that 42°F would fulfill both requirements, but I find the lack of consistency to be absurd when considering the cost of these documents.
Committee Meeting Action: Reject
Committee Statement: The language proposed is already in the standard. This standard provides the 40°F threshold for alarms where NFPA 22, Standard for Water Tanks for Private Fire Protection, provides design criteria of 42°F. There is an intended difference in these values.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-228 Log #CP9 **Final Action: Accept**
(9.2.4.1)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise 9.2.4.1 to read as follows:
9.2.4. 1 The temperature of water in tanks shall not be less than 40°F (4.4°C).
Substantiation: Add the term "in " to 9.2.4.1 so the temperature threshold applies to the water in the tank and not the tank itself. This makes this section correlate with the remaiing section sof 9.2.4
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-229 Log #282 **Final Action: Accept**
(9.3.3 and 9.3.5)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Change the word "alarms" to "signals" in both sections
Substantiation: Using the terminology of NFPA 72, an "alarm" is an indication of a condition where the only correct action is to call the fire department. For other indications of problems in a system, the correct term is a "signal". The correct action when a low temperature or low water condition occurs is not to call the fire department. Therefore, the term needs to be changed from "alarm" to "signal".
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-230 Log #281 **Final Action: Accept**
(9.5.1.1 and Table 9.5.1.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise 9.5.1.1 to read as follows:
9.5.1.1 Automatic tank fill valves shall be inspected ~~weekly to ensure that the OS&Y isolation valves are in the normal open position~~ in accordance with Table 9.5.1.1. OS&Y isolation valves that are a part of the automatic fill valves shall be inspected in accordance with Chapter 13.
Also, in the first row of Table 9.5.1.1, "Strainers, filters, orifices (inspect and clean)", change the frequency from "Quarterly" to "5 years"
Substantiation: Current section 9.5.1.1 mixes up two different concepts. It has requirements for OS&Y valves and then sends the user to Table 9.5.1.1, but the table does not contain requirements for OS&Y valves. The weekly requirement for the OS&Y valves to be inspected is inappropriate. OS&Y valves with electronic supervision should be allowed to be inspected monthly as permitted by Chapter 13.
Within the table, the inspection requirements for filters, orifices and strainers are too onerous. These objects are inside the valve and it is not efficient to take these valves apart quarterly to inspect these internal parts. For alarm valves and quick opening devices, Chapter 13 allows these filters, orifices and strainers to be inspected once every 5 years and the same frequency should be used for tank fill valves.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-231 Log #90 **Final Action: Accept**
(10.2.5.1)

Submitter: Kevin Turay, SimplexGrinnell / Rep. Tyco/Simplex Grinnell
Recommendation: Propose revision of wording of 10.2.5.1 in Chapter 10 Water Spray Fixed Systems as follows:
10.2.5.1 Water spray nozzles shall be inspected and maintained to ensure that they are in place, continue to be aimed or pointed in the direction intended ~~in the system design~~, and are free from external loading and corrosion.
Substantiation: This proposed revision is to remove the reference about system design as Inspectors are not Designers and would not be knowledgeable of the design criteria. They can only inspect as installed and observe if there appears to be proper spray direction to furnish coverage. This proposal is being submitted by the Tyco Codes and Standards ITM Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-232 Log #265 **Final Action: Reject**
(10.3.4.4.3)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add "as provided by the owner" to 10.3.4.4.3 so that the sentence reads:
10.3.4.4.3 Readings shall be compared to the hydraulic design pressures as provided by the owner to ensure...
Substantiation: The person performing the test is not in a position to determine the original design pressure of the system. The owner needs to be responsible for providing this information.
Committee Meeting Action: Reject
Committee Statement: The owners requirements are already identified in section 4.1.1.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-233 Log #56 **Final Action: Reject**
(11.3.5.3)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
11.3.5.3 Concentration shall be within 10 percent of the acceptance test results as provided by the owner, but in no case more than 10 percent below minimum design standards.
Substantiation: Standard references the acceptance test as a baseline and this modification requires the owner to provide this data for the comparison. The proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The owners requirements are already identified in Section 4.1.1.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-234 Log #CP10 **Final Action: Accept**
(Chapter 12)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise Chapter 12 to read as follows:
Proposal:

Item 1 - Remove all NFPA 750 Extract references from Chapter 12

Item 2 – Add new 12.1.2 under Inspection and Testing as follows:

12.1.2 Water Mist Nozzles (add new section and renumber subsequent sections)

12.1.2.1 Water mist nozzles shall be inspected from the floor level annually.
12.1.2.1.1 Any water mist nozzle that shows signs of any of the following shall be replaced:
(1) Leakage
(2) Corrosion
(3) Physical damage
(4) Loss of fluid in the glass bulb heat responsive element
(5)*Loading
(6) Painting unless painted by the water mist nozzle manufacturer
12.1.2.1.2 Any water mist nozzle that has been installed in the incorrect orientation shall be corrected by repositioning the branch line, drop or sprig, or shall be replaced.
12.1.2.1.3 Water mist nozzles with glass bulbs shall be replaced if the bulbs are empty of fluid.
12.1.2.1.4 Water mist nozzles installed in concealed spaces such as above suspended ceilings shall not require inspection.
12.1.2.1.5 Water mist nozzles installed in areas that are inaccessible for safety considerations due to process operations shall be inspected during each scheduled shutdown.
12.1.2.1.6 Stock, furnishings, or equipment closer to the water mist nozzle than permitted by the clearance specified in the manufacturer's installation instructions shall be corrected.
12.1.2.2 The supply of spare automatic water mist nozzles shall be inspected annually for the correct number and type of water mist nozzles as required by NFPA 750.
A.12.1.2.1.1 (5) In lieu of replacing water mist nozzles that are loaded with a coating of dust, it is permitted to clean the nozzles with compressed air or by a vacuum provided that the equipment does not touch the nozzle.
12.1.2.3* Where required by this section, sample automatic water mist nozzles shall be submitted to a recognized testing laboratory acceptable to the authority having jurisdiction for functional testing.
12.1.2.3.1 Water mist nozzles that have been in service for 20 years shall be replaced, or representative samples shall be tested and then retested at 10-year intervals.
12.1.2.3.2* Where water mist nozzles are subjected to harsh environments, including corrosive atmospheres and corrosive water supplies, they shall be either replaced or representative samples tested on a 5-year basis.
12.1.2.4* A representative sample of water mist nozzles for testing per 12.1.2.3 shall consist of a minimum of four water mist nozzles or 1 percent of the number of water mist nozzles per individual water mist nozzle sample, whichever is greater.
12.1.2.4.1 Where one water mist nozzle within a representative sample fails to meet the test requirement, all water mist nozzles within the area represented by that sample shall be replaced.
A.12.1.2.3 Water mist nozzles should be first given a visual inspection for signs of mechanical damage, cleaning, painting, leakage in service, or severe loading or corrosion, all of which are causes for immediate replacement. Nozzles that have passed the visual inspection should be laboratory tested for sensitivity and functionality. Thermal sensitivity should be not less than that permitted in post-corrosion testing of new water mist nozzles of the same type. Water mist nozzles that have been in service for a number of years should not be expected to have all of the performance qualities of a new water mist nozzle. However, if there is any question about their continued satisfactory performance, the water mist nozzles should be replaced.
A.12.1.2.3.2 These environments include outdoor weather conditions and portions of any area where corrosive vapors prevail. Harsh water environments include water supplies that are chemically reactive.
A.12.1.2.4 Within the area represented by the selected sample, water mist nozzles of the same design produced by the same manufacturer can be considered part of the same sample, but additional water mist nozzles would need to be selected if produced by a different manufacturer.

Item 3 – Revise 12.2 Maintenance as follows:

12.2 Maintenance.
12.2.1 General
12.2.1.1 Maintenance shall be performed to keep the system equipment operable or to make repairs.
12.2.1.1.1 Mechanical waterflow devices, including but not limited to water motor gongs, shall be tested quarterly.
12.2.1.1.2 Vane-type and pressure switch–type waterflow devices shall be tested semiannually.
12.2.1.1.3 Waterflow devices shall be inspected quarterly to verify that they are free of physical damage.
12.2.1.1.4 (New) Where required by the manufacturer, maintenance shall be performed on devices not described in this standard.
12.2.1.2 As-built system installation drawings, original acceptance test records, and device manufacturer's maintenance bulletins shall be retained to assist in the proper care of the system and its components.
12.2.1.3 (Old 12.2.8) Replacement components shall be in accordance with the manufacturer's specifications and the original system design.
12.2.1.4 (Old 12.2.9) Spare components shall be accessible and shall be stored in a manner to prevent damage or contamination
12.2.1.5* (Old 12.2.10*) After each system operation, a representative sample of operated water mist nozzles in the activated zone shall be inspected**.**
A.12.2.1.5 (Old A.12.2.10) The representative sample should include 10 percent of the water mist nozzles in the activated zone. If contamination of filters or strainers is found on inspection, it is recommended that all nozzles within the activated zone be inspected.
12.2.1.6 (Old 12.2.11) After each system operation due to fire, the system filters and strainers shall be cleaned or replaced.
12.2.1.7 (Deleted old 12.2.74 Where applicable to the type of water mist system, Scheduled maintenance shall be performed as outlined in Table 12.2.1.4.

Table 12.2.1.74 Maintenance Frequencies

Item	Activity	Frequency
Water tank	Drain and refill	Annually
System	Flushing	Annually
Strainers and Filters	Clean or replace as required	After system operation

~~**[750: Table 13.3.4]**~~

12.2.2 Water Mist Nozzles
12.2.2.1* Replacement water mist nozzles shall have the proper characteristics for the application intended including the nozzle model and temperature rating.
A.12.2.2.1 Each water mist nozzle has unique requirements for protection applications and end use limitations.
12.2.2.2 Only new water mist nozzles shall be used to replace existing water mist nozzles.
12.2.2.3* A supply of spare water mist nozzles (never fewer than three) shall be maintained on the premises so that any water mist nozzles that have operated or been damaged in any way can be promptly replaced.

A.12.2.2.3 A minimum of two water mist of each type and temperature rating installed should be provided.
12.2.2.3.1 The water mist nozzles shall correspond to the manufacturer(s), models and temperature ratings of the water mist nozzles in the property.
12.2.2.3.2 The automatic water mist nozzles shall be kept in a cabinet located where the temperature will at no time exceed 100°F (38°C).
12.2.2.3.3 The stock of spare thermally activated nozzles shall include all types and ratings installed and shall be as follows:
(1) For systems having fewer than 50 nozzles, not fewer than 3 nozzles
(2) For systems having 50 to 300 nozzles, not fewer than 6 nozzles
(3) For systems having 301 to 1000 nozzles, not fewer than 12 nozzles
(4) For systems having over 1000 nozzles, not fewer than 24 nozzles
12.2.2.4* Where required by the manufacturer, a special water mist nozzle wrench shall be provided and kept in the cabinet to be used for the removal and installation of nozzles.
A.12.2.4 Other types of wrenches could damage the water mist nozzles.
12.2.2.4.1 One water mist nozzle wrench shall be provided for each type of nozzle installed.
12.2.2.5 Protective Coverings
12.2.2.5.1 Water mist nozzles protecting spray areas and mixing rooms in resin application areas installed with protective coverings shall continue to be protected against overspray residue so that they will operate in the event of fire.
12.2.2.5.2* Water mist nozzles installed as described in 12.2.2.5.1 shall be protected using cellophane bags having a thickness of 0.003 in. (0.076 mm) or less or thin paper bags.
A.12.2.2.5.2 Typical sandwich bags purchased in a grocery store are generally plastic, not cellophane. Plastic bags have a tendency to shrink and adhere to the nozzles prior to nozzle activation, creating the potential for disruption of nozzle spray pattern. Bags placed over nozzles need to be cellophane or paper.
12.2.2.5.3 Coverings shall be replaced periodically so that heavy deposits of residue do not accumulate.
12.2.2.6 Water mist nozzles shall not be altered in any respect or have any type of ornamentation, paint, or coatings applied after shipment from the manufacturer.
12.2.2.7 Automatic water mist nozzles used for protecting commercial-type cooking equipment and ventilating systems shall be replaced annually.
12.2.2.7.1 Where automatic water mist nozzles are used and annual examination shows no buildup of grease or other material on the nozzles, the nozzles shall not be required to be replaced.
Substantiation: The inspection, testing and maintenance requirements for water mist systems should be removed from NFPA 750 and included in NFPA 25 only.

Similar to sprinklers, water mist nozzles have the potential to degrade when exposed to installation environments. Neither NFPA 25 nor NFPA 750 currently includes requirements for periodic inspection, testing or maintenance water mist nozzles. Since water mist technology utilizes fast response heat responsive elements, 20 years has been referenced as a reasonable time period for initial replacement or representative sample testing of these devices which is consistent with the approach applied to sprinklers.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-235 Log #89 **Final Action: Accept**
(Table 12.1.2 and 12.2.4)

Submitter: Zachary L. Magnone, Tyco Fire Protection Products / Rep. Tyco/ Simplex Grinnell
Recommendation: Table 12.1.2 and 12.2.4 should be combined and reorganized to be consistent with the general style of the other chapters in the standard – e.g. Table 5.1.1.2. The related chapter entries should be updated in accordance with the change, and the revised table should be renumbered and renamed similar to the following:
Table 12.1.1.2 Summary of Water Mist System Inspection, Testing, and Maintenance
In addition, references to the applicable chapters should be identified and added into the table for the various components – e.g. chapter 8 for fire pumps, chapter 9 for tanks, etc.
Substantiation: Water mist systems are being utilized in lieu of standard sprinkler and fixed water spray systems for various applications. Considering that in many ways, water mist systems are functionally similar to the systems they are replacing, they should still adhere to – at a minimum – and identical level of inspection, testing, and maintenance. Being a direct import from NFPA 750, the current design of chapter 12 is confusing, difficult to use, and does not adequately address the required inspection, testing, and maintenance procedures of many parts and pieces of the system. As a result, the tables in Chapter 12 should be updated to follow the same architecture as the rest of the standard. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-236 Log #334 **Final Action: Accept**
(Table 12.1.2 - (Pump))

Submitter: Scott J. Harrison, Marioff Inc.
Recommendation: Revise table to read as follows:

Table 12.1.2 Maintenance of Water Mist Systems

Item	Task	Weekly	Monthly	Quarterly	Semi-Annually	Annually	Other
Standby Pump	Inspect and empty the moisture trap, inspect oil injection (pneumatic)		X	~~X~~			

Substantiation: The frequency posted in Table 12.1.2 for inspecting the Standby Pump moisture trap and oil injection (pneumatic) is not adequate. It should be increased from quarterly to monthly to reduce the possibility of any moisture building up. The text "and empty" should be added so not only is the moisture trap inspected but any moisture should be required to be emptied as well.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
DRYSDALE, M.: No technical data was provided to substantiate increasing the frequency from quarterly to monthly.
ELVOVE, J.: Changes in frequency, especially when increased, need to be substantiated.

25-237 Log #333 **Final Action: Accept**
(Table 12.1.2 - (Tanks))

Submitter: Scott J. Harrison, Marioff Inc.
Recommendation: Revise table to read as follows:

Table 12.1.2 Maintenance of Water Mist Systems

Item	Task	Weekly	Monthly	Quarterly	Semi-Annually	Annually	Other
Water Storage Tanks	Check water level (unsupervised)	~~X~~	X				

Substantiation: The frequency posted in Table 12.1.2 for checking the water level in Water Storage Tanks (unsupervised) as "weekly" is excessive and unnecessary. It should be changed to a "monthly" basis.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
DRYSDALE, M.: No technical data was provided to substantiate changing the frequency from weekly to monthly.
ELVOVE, J.: See my comment on 25-236.

25-238 Log #332 **Final Action: Accept**
(Table 12.1.2 - (Valve))

Submitter: Scott J. Harrison, Marioff Inc.
Recommendation: Revise table to read as follows:

Table 12.1.2 Maintenance of Water Mist Systems

Item	Task	Weekly	Monthly	Quarterly	Semi-Annually	Annually	Other
Pneumatic Valves	Test solenoid release of master release valves				X	~~X~~	

Substantiation: The frequency posted in Table 12.1.2 for testing the solenoid release of master release valves should be increased from Annually to Semi-Annually. The integrity of these valves should be tested more frequently to confirm successful operation of these devices during a fire.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
DRYSDALE, M.: No technical data was provided to substantiate increasing the frequency from annually to semi-annually.
ELVOVE, J.: See my comment on 25-236.

25-239 Log #69 **Final Action: Accept**
(Table 13.1.1.2)

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Table 13.1.1.2 - add reference to gauges under "Testing" Frequency and Reference.
(See Table 13.1.1.2 below.)
Substantiation: This requirement is intended to be consistent with other sections in this document.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-240 Log #125 **Final Action: Accept**
(Table 13.1.1.2)

Submitter: Roland J. Huggins, American Fire Sprinkler Association, Inc.
Recommendation: Under testing add:
Preaction/Deluge Valves
Air leakage 3 years 13.4.3.2.6
Dry Pipe Valves/Quick-Opening Devices
Air leakage 3 years 13.4.4.2.9
Substantiation: Incorporates change from last cycle.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-241 Log #195 **Final Action: Accept in Principle**
(Table 13.1.1.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add the 3 year air leakage test to table 13.1.1.2 as described below.
Under *Preaction/Deluge Valves* add:
Preaction air leakage 3 years 13.4.3.2.6
Under *Dry Pipe Valves/Quick Opening Devices* add:
Air leakage test 3 years 13.4.4.2.9
Substantiation: The requirement for the air leakage test was added during the last couple of cycles, but the reference was never added to Table 13.1.1.2. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-240 (Log #125).
Committee Statement: See Committee Statement on Proposal 25-240 (Log #125).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

Table 13.1.1.2 Summary of Valves, Valve Components, and Trim Inspection, Testing, and Maintenance *Continued (Remainder of Table omitted for brevity)*

Item	Frequency	Reference
Testing		
Main Drains	Annually/quarterly	13.2.5, 13.2.5.1, 13.3.3.4
Gauges	5 Years	13.2.7.2
Waterflow Alarms	Quarterly/semiannually	13.2.6
Control Valves		
Position	Annually	13.3.3.1
Operation	Annually	13.3.3.1
Supervisory	Semiannually	13.3.3.5
Preaction/Deluge Valves		
Priming water	Quarterly	13.4.3.2.1
Low air pressure alarms	Quarterly/annually	13.4.3.2.13, 13.4.3.2.14
Full flow	Annually	13.4.3.2.2
Dry Pipe Valves/ Quick-Opening Devices		

25-242 Log #196 **Final Action: Accept in Principle**
(Table 13.1.1.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise the references in table 13.1.1.2 for inspecting control valves and the tamper switches that go with them as shown.
Sealed Weekly 13.3.2.1
Locked or supervised Monthly 13.3.2.1.1
Tamper switches ~~Monthly~~ Quarterly 13.3.2.1.~~1~~ 2
Substantiation: These changes clarify the requirements in chapter 13 for inspecting the control valves themselves as well as the tamper switches that supervise them. The valves are to be inspected monthly if they are locked or supervised. The switch itself is required to be inspected quarterly. Making this distinction is necessary when a sprinkler service company is inspecting the valves, and a fire alarm service company is only inspection the alarm system devices. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Accept the proposed language and Change Tamper Switch to Valve Supervisory Signal Initiating Device (to be italicized in table)
Revise -
'Locked or supervised" to read "locked or electrically supervised"
Committee Statement: Correlates with nomenclature in Chapter 5 and is consistent with proposal 25-248 (Log #177).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-243 Log #135 **Final Action: Reject**
(13.2.5)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add a new 13.2.5 as shown and renumber the rest of section 13.2.
13.2.5 Notification to Supervisory Service. To avoid false alarms where a supervisory service is provided, the alarm receiving facility shall be notified by the property owner or designated representative as follows:
(1) Before conducting any test or procedure that could result in the activation of an alarm
(2) After such tests or procedures are concluded
Substantiation: This new text should be added in every chapter 6 through 13 to be consistent with chapters 4 and 5. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: This requirement is already covered by Section 4.1.3. This language is being deleted from the document per Proposal 25-5 (Log #CP11).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-244 Log #CP12 **Final Action: Accept**
(13.2.5)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise Section 3.3.7 to read:
3.3.7.1 ***Main Drain***. The primary drain connection located on the system riser ~~and also utilized as a flow test connection.~~
Add section 3.3.X to read:
3.3.X Valve Status Test – Flowing water to verify valves for a portion of the system are not closed.
Add Section 3.3.36 and 3.3.36 to read:
3.3.36* Valve Status *Test Connection*. A point in the system where water is discharged for purposes of performing a valve status test.
A.3.3.36 These connections can include the main drain, fire pump test header, backflow preventer forward flow test connection, fire hydrant and other similar locations. In the absence of the aforementioned devices, an inspectors test connection may be used.
Revise 13.2.5 and A.13.2.5 as follows:
13.2.5* Main Drain Test. A main drain test shall be conducted annually for each water supply lead-in to a building water-based fire protection system to determine whether there has been a change in the condition of the water supply ~~piping and control valves~~. *(See also* 13.3.3.4.)
A.13.2.5 Main drains are installed on system risers for one principal reason: to drain water from the overhead piping after the system is shut off. This allows the contractor or plant maintenance department to perform work on the system or to replace nozzles after a fire or other incident involving system operation. Data collected from the suction gauges during a fire pump flow test that test the water supply would satisfy the requirements for a main drain test.
~~The test for standpipe systems should be done at the low-point drain for each standpipe or the main drain test connection where the supply main enters the building~~.
~~The main drain is only one of many test connections that can be used to provide a water supply test to give an indication~~ These drains also are used to determine whether there is a major reduction in water-flow to the system, such as could be caused by a major obstruction, a dropped gate, a valve that is almost fully closed, or a check valve clapper stuck to the valve seat. A satisfactory Main Drain Test ~~drain water supply~~ test (i.e. one that reflects the results of previous tests) does not necessarily indicate an obstructed passage, nor does it prove that all valves in the upstream flow of water are fully opened. However, these tests provide a reasonable level of confidence that the water supply has not been compromised.
~~The performance of drain tests is not a substitute for a valve check on 100 percent of the fire protection valves valving.~~
The main drain test is conducted in the following manner:
(1) Record the pressure indicated by the supply water gauge.
(2) Close the alarm control valve on alarm valves
(3) Fully open the drain valve
(4) After the flow has been stabilized, record the residual (flowing) pressure indicated by the water supply gauge.
(5) Close the main drain valve slowly.
(6) Record the time taken for the supply water pressure to return to the original static (nonflowing) pressure.
Add 13.2.5.X Where the lead-in to a building supplies a header or manifold serving multiple systems, a single main drain test shall be permitted.
Revise 13.3.1.2.1 to read:
13.3.1.2.1When a valve is returned to service, a ~~drain test~~ Valve Status Test (either main or sectional drain, as appropriate) shall be conducted to determine that
the valve is not closed.
Add "Valve Status Test" reference and refer to 13.3.1.2.1 in tables chapter 5,6,7,9,10,11
Continue Main Drain Test reference to 13.2.5 in chapter 5,6,7,9,10,11
Delete 13.8.3 ~~A main drain test shall be conducted in accordance with 13.3.3.4 if the system control or other upstream valve was operated.~~
Delete 5.5.2 ~~A main drain test shall be required if the system control or other upstream valve was operated in accordance with 13.3.3.4.13.2.5~~
Delete 6.5.3 ~~A main drain test shall be required if the control valve or other upstream valve was operated in accordance with 13.3.3.4.~~
Delete 7.5.3 ~~A main drain test shall be required if the system control or other upstream valve was operated~~.
Delete 9.6.3 ~~A main drain test shall be required if the system control or other upstream valve was operated in accordance with 13.3.3.4.~~
Delete 10.3.7.1 ~~Main Drain Tests.~~
Delete 10.3.7.1.1 ~~Main drain tests shall be conducted at the main riser to determine whether there has been any change in the condition of the water supply piping and controlling valves.~~
Delete 10.3.7.1.2 ~~Static and residual water pressures shall be recorded respectively before, during, and after the operation of the fully opened drain valve.~~
Delete 10.3.7.1.3 ~~Readings shall be compared with those made at the time of the original acceptance tests or with those made at the time of the last test to determine whether there has been any deterioration of the water supply.~~
Delete 10.5.3 ~~A main drain test shall be required if the system control or other upstream valve was operated in accordance with 13.3.3.4.~~
Delete 11.5.3 ~~A main drain test shall be required if the system control or other upstream valve was operated in accordance with 13.3.3.4.~~
Substantiation: This committee proposal was written based off of the concepts presented in 25-3 (Log #242). The technical committee formulated a task group during the ROP meeting to refine the concepts. This proposal adds new definitions for Valve Status test and valve status test connection. These definitions were added to make a distinction between the main drain test and a valve status test. These test are much different in scope as the main drain test contemplates measuring flow for the purpose of determining if there was a change in the condition of water supply. The valve status test does not require flow measurements and is intended to confirm whether or not valves are closed. The revisions also confirm that the intent of the main drain test is for each lead-in into the building, not each system within the building.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-245 Log #91 **Final Action: Reject**
(13.2.5 and A.13.2.5)

Submitter: Howard G. Clay, VSC Fire & Security, Inc.
Recommendation: Revise text to read as follows:
A main drain test shall be conducted ~~annually~~ quarterly at each water-based fire protection system riser to determine whether there has been a change in the condition of the water supply piping and control valves.
Substantiation: Note: This proposal dovetails with the need to cycle control valves on a quarterly basis; they are not mutually exclusive.
According to NFPA research, closed control valves account for over 35% of why sprinkler systems fail. After multiple years in the industry performing inspections and testing, our experience has shown that the annual main drain requirement is too long between testing cycles. The 13.3.3.1 requirement embodies within its own text that the drain test may determine a change in the condition of the control valves. 3.3.7.1 NFPA 25 Handbook commentary claims "the intent of the main drain test is to verify that the water supply valves are open or to reveal any changes in the condition of the water supply…" Even

though NFPA requires the **visual inspection** of control valves on a more frequent basis, history reveals that these types of **inspections** are purported to be performed in-house. That claim notwithstanding, we know that in-house personnel may close and reopen control valves throughout the year for various reasons and never perform the required drain test as stated in 13.3.1.2.1 and 13.3.3.4. In addition, upon inspection to in-house personnel, those valves may appear to be open but, in reality, are not. Furthermore, we also know that construction and service work performed outside the facility could lead to a closed property valve that would not be caught on a visual inspection as those valves are neither indicating nor supervised. The provisions made in 13.3.1.2.1 are said to not apply to underground valves because these valves are confirmed by opening a hydrant. Opening a hydrant will only confirm the position of a street valve entering the property if that hydrant is private and coming off the fire line after the meter. Otherwise, the pressure looks normal, but the system is without a water supply. Additionally, 13.2.5.1 requires a quarterly test of the main drain be performed on at least one system downstream of a BFP to ensure the seats in the BFP are freely moving. Why leave out other systems main drains that may be controlled by a valve that is unsupervised and has been closed over the last year? It doesn't make sense, especially if those valves are remote from the BFP feeding individual buildings of apartments or condominiums. A.13.2.5 states that "drains also are used to determine whether there is a major reduction in waterflow to the system such as could be caused by a major obstruction, a dropped gate, a valve that is almost fully closed, or a check valve clapper stuck to the valve seat." If "the inspections required by NFPA 25 are **specifically intended** to reveal damage or normal aging of the system and components with the goal to verify that the system will function as intended."(body of 1.1.2), then logic would deduct that the number 1 cause of system failures should be tested more often than annually. The benefits of the quarterly main drain test far outweigh the risks.
Committee Meeting Action: Reject
Committee Statement: No data submitted indicating the current frequency is inadequate. It should also be noted that systems with backflow preventers are tested quarterly so the lead-in is tested quarterly for the majority of systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-246 Log #26 **Final Action: Reject**
(13.2.5.1)

Submitter: Frank Monikowski, SimplexGrinnell
Recommendation: Add new text as follows:
13.2.5.1 Main drain piping shall be hard piped to a location that allows the main drain valve to be completely opened long enough to obtain an accurate residual pressure reading.
Revise 13.2.5.1 to become 13.2.5.2, 13.2.5.2 becomes 13.2.5.3.
Substantiation: Conducting a full flow main drain test is needed to more accurately determine if the water supply has degraded by 10% or more. A partial main drain test does little to accomplish this. In the appendix A.13.2.5 it clearly states in the last paragraph in item 3 that "Fully open the main drain valve" as part of the test procedure. Too often this is not possible due to inadequate drainage of the water as it is being discharged. When this occurs, we need to require piping modifications; otherwise the main drain test serves no purpose.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: This is an installation issue and is covered by NFPA 13, Standard for the Installation of Sprinkler Systems, Section 8.16.2.4.4.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-247 Log #324 **Final Action: Reject**
(13.3.2.1.1)

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Revise text to read as follows:
13.3.2.1.1 Valves secured with locks or supervised in accordance with applicable NFPA standards shall be permitted to be inspected quarterly ~~monthly~~.
Substantiation: Most, but not all sprinkler systems are under contract for the inspection requirements of this Standard to be performed. For those that are, a quarterly inspection should suffice. For those that are not, they are most likely not being performed by anyone at any period as specified by this Standard. As this is a minimum standard, for those properties that are having inspections performed by their personnel, they may still elect to perform a monthly inspection. Those systems that are connected to a supervising station would transmit a supervisory signal when the valve is turned two revolutions or 1/5th the travel distance of the valve.
Committee Meeting Action: Reject
Committee Statement: No data submitted supporting a reduced inspection frequency on the issue that presents the single largest cause for system failure.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-248 Log #177 **Final Action: Accept**
(13.3.2.1.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add a new requirement 13.3.2.1.2 as shown and renumber subsequent sections as necessary.
13.3.2.1.2 Control valve supervisory alarm devices shall be inspected quarterly to verify that they are free of physical damage.
Substantiation: This requirement exists in chapter five, but also applies to control valves in other chapters of this standard, and should be included in Chapter 13 for continuity. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
FIELD, G.: Per 25-113 (Log #303) verify "supervisory alarm devices" will change to "supervisory signal initiating device."

25-249 Log #178 **Final Action: Accept in Principle**
(13.3.2.2(4))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change section 13.3.2.2 (4) as shown.
13.3.2.2 (4) Provided with correct wrenches for PIVs
Substantiation: This change clarifies that wrenches are only needed for PIVs. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
13.3.2.2 (4) PIVs are provided with correct wrench wrenches
Committee Statement: Rewording is editorial and seems in line with submitters intent.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-250 Log #92 **Final Action: Reject**
(13.3.3 and 13.3.3.1)

Submitter: Howard G. Clay, VSC Fire & Security, Inc.
Recommendation: Revise text to read as follows:
Each control valve shall be operated ~~annually~~ quarterly through its full range and returned to its normal position.
Substantiation: Note: This proposal dovetails with the need to perform main drain tests on a quarterly basis; they are not mutually exclusive.
According to NFPA research, closed control valves account for over 35% of why sprinkler systems fail. Even though NFPA requires the **visual inspection** of control valves on a more frequent basis, history reveals that these types of **inspections** are purported to be performed in-house. That claim notwithstanding, we know that in-house personnel may close and reopen control valves throughout the year for various reasons, and those valves may appear upon visual inspection to be open to them but, in reality, are not. Even worse, the unsupervised valve may be left partially or completely closed. OS&Y valves can break loose from their operating nut if tightened too much, and all though they can be opened after the break, they cannot be closed down again in the event of a need to close the water supply. The handle of butterfly valves can be operated and the indicator can rotate back and forth while the shaft of the valve is not even connected to the body gate. Furthermore, we also know that construction and service work performed outside the facility could lead to a closed property valve that would not be caught on a visual inspection as those valves are neither indicating nor supervised. 13.3.3.5.1 states the "valve supervisory switches shall be tested semiannually." This test is for the switch and does not take into consideration the condition of the valve as it only has to be moved 1/5th the travel distance of the hand wheel or two revolutions. That rotation is not adequate enough to keep the valve stem lubricated well, the seat free of debris, or confirm the operational condition of the valve, especially on large valves. By cycling control valves fully at shorter intervals, more closed control valves will be identified and deposits will not have a chance to build up on the gate, wedge, or seat. If "the inspections required by NFPA 25 are **specifically intended** to reveal damage or normal aging of the system and components with the goal to verify that the system will function as intended."(body of 1.1.2), then logic would deduct that the number 1 cause of system failures should be tested more often than annually / semiannually (for those devices unsupervised). The benefits of the quarterly testing of control valves far outweigh the risks.
Committee Meeting Action: Reject
Committee Statement: No data provided showing an increased frequency would significantly reduce the risk.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1

Explanation of Negative:
WHITNEY, J.: The quality of diesel fuels are changing. Today's fuels are less stable than in the past and this trend is going to continue to get worsen. We have the opportunity to address this problem before it becomes the reason for a loss. This proposal only only adds the requirement of annual testing of the fuel to verify its quality. Only where a problem is identified with the fuel are additional requirements then necessary. With all that we require to be done to insure these systems are reliable, I cannot see that this simple test should not be required. I ask this committee to remember this standard is used around the world where fuels are less predictable and less reliable than here in the US.

25-251 Log #179 **Final Action: Accept in Principle in Part**
(13.3.3.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise the text in 13.3.3.2 as shown, add next text as 13.3.3.2.1, and renumber current 13.3.3.2.1.
13.3.3.2* Post indicator valves shall be operated annually through its full range and reopened using the appropriate manufacturer's wrench until spring or torsion is felt in the rod, indicating that the rod has not become detached from the valve.
13.3.3.2.1 If the post indicator valve cannot be operated or reopened using reasonable force with the appropriate manufacturer's wrench, the valve and the post shall be lubricated and repaired as necessary until it can be opened without using unreasonable force.
13.3.3.2.2 This test shall be conducted every time the valve is closed.
Substantiation: This change clarifies that a proper wrench needs to be used for this test. Using an improper wrench such as a pipe wrench has resulted in damage to the operating nut. The use of break over bars and extensions on the wrench can damage the valve and/or the post. If the valve cannot be closed and reopened using the proper wrench with reasonable force, then some maintenance and/or repairs are necessary so the valve can be operated when needed in a fire event. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle in Part
See proposal 25-333 (Log #191) and 13.3.3.1 already requires exercising through full range annually.
Reject: changes to 13.3.3.2 to operate annually full range.
Committee Statement: No changes are made to the standard based on this action.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
BELL, K.: It is not completely clear to me what text will be included in the body and Annex of the standard as a result of this TC action.

25-252 Log #268 **Final Action: Accept in Principle in Part**
(13.4.3.1.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise text to read as follows:
Delete 13.4.3.1.1
Delete 13.4.3.1.1.1
Renumber the rest of 13.4.3.1
Revise existing 13.4.3.1.2 as follows:Low temperature alarms, if installed in valve enclosures, shall be inspected annually at the beginning of the heating season to ensure that the wires are connected and that the device appears to be in working order.
Substantiation: There is no way for the inspector to know (on any given day) whether the heating equipment is working. If the inspector goes into the enclosure on a day where the temperature is over 40 degrees, there is no way to determine if the heating equipment is operational. There is no way to simulate a cold condition to see if the heating comes on.
The building owner is already required under section 4.1.1.1 to make sure that adequate heat is provided in areas with water-filled piping. This is a more appropriate way to address this issue as an ongoing maintenance requirement rather than a periodic inspection.
The additional language at the end of the alarm inspection is just to tell the inspector what they are looking for during the inspection. Without this information, the inspector does not know what they are doing with the inspection.
Committee Meeting Action: Accept in Principle in Part
Reject deleting 13.4.3.1.1 & 13.4.3.1.1.1
Modify 13.4.3.1.1 Valve enclosures ~~enclosure heating equipment~~ for preaction and deluge valves subject to freezing shall be inspected daily during cold weather to verify ~~for its ability to maintain~~ a minimum temperature of 40F
Modify 13.4.3.1.2 Low temperature alarms, if installed in valve enclosures, shall be inspected annually at the beginning of the heating season to verify that they are free of physical damage.
Committee Statement: The technical committee acknowledges that the requirements of 13.4.3.1.1 and 13.4.3.1.1.1 are addressed in a general sense in chapter 4, however retaining this language provides additional direction. This is consistent with modifications to 25-44 (Log #95).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-253 Log #192 **Final Action: Accept**
(13.4.3.2.2.1 and A.13.4.3.2.2.1 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Move annex section A.13.4.3.2.2.2 to the main body as 13.4.3.2.2.1 and revise as shown, and renumber subsequent sections.
~~A.~~13.4.3.2.2.~~2~~ 1 Full flow tests shall ~~should~~ incorporate full functionality of the system as a unit, including automatic detection and manual activation.
A.13.4.3.2.2.1 It is necessary that the full flow test incorporate the full functionality of the system which would include any solenoid valves or other actuation devices. It was a common practice in the past to test the detection system or manual pull station up to the solenoid valve or actuator, and to separately test the deluge valve and system after the solenoid valve or actuator. All of these components should be tested together to ensure the system will operate when the detector signals or manual pull station is initiated.
Substantiation: While this guidance is in the annex, it technically isn't enforceable. There have been both deluge and preaction systems tested for years without testing the proper integration of the detection system or the manual pull station with the system. In essence, solenoid valves were never actuated, and in a fire scenario the supposedly integrated system did not work. This requirement belongs in the body of the standard. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Committee Statement: Many of these systems are pneumatic and are self contained and in that sense do not fall under the jurisdiction of NFPA 4 which deals with interconnected and integrated systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
ELVOVE, J.: Moving text from the annex into the standard now mandates that full flow tests involve a fire alarm contractor because of the new requirement to test automatic and manual activation devices. This is outside the scope of NFPA 25 and therefore can't be mandated. This type of language is perfectly suited in the annex and needs to return there. The Standards Council should take notice of this proposed change, should it not be overturned during ROC.
LARRIMER, P.: There is no reason to require that the detection devices be tested as part of the flow test for many pre-action and deluge systems. Many times you can test the detection equipment without flowing water and then complete the required flow test at another time. Requiring the testing detection equipment is outside the scope of this standard. That interface is already covered in Sections 1.1.1.1 and 1.1.1.2.
SAIDI, J.: It appears that this new requirement would necessitate having a Fire Alarm contractor/technician, which is outside the scope of 25.
Comment on Affirmative:
FELD, J.: The ITM contractor can ensure the preaction valve will trip and the fire alarm contractor can ensure the detection devices will operate but that does not ensure the preaction system will function properly when a fire occurs.

25-254 Log #180 **Final Action: Reject**
(13.4.3.2.2.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise section 13.4.3.2.2.2 as shown.
13.4.3.2.2.2* Where the nature of the protected property is such that water cannot be discharged for test purposes, the trip test shall be conducted flowing at least the system demand as provided by the owner in a manner that does not necessitate discharge in the protected area.
Substantiation: This change clarifies that if an alternate test is performed the amount of water flowed still have to equal or exceed the system demand. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: There is no requirement to flow water but only to trip the valve.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-255 Log #262 **Final Action: Reject**
(13.4.3.2.5 and 13.4.4.2.2.4 (New))

Submitter: Don Moeller/Chair/TC on Cultural Resources, The Fire Consultants, Inc.
Recommendation: Add new paragraphs 13.4.3.2.5 and 13.4.4.2.2.4 as follows:
13.4.3.2.5 Following the preaction system trip test where the control valve is completely open, and after an operation of a preaction system that introduces water into the system piping beyond the system riser, the system piping shall be dried before the system is returned to service.
13.4.4.2.2.4 Following the dry valve trip test where the control valve is completely open, and after an operation of the dry pipe valve that introduces water into the system piping beyond the system riser, the system piping shall be dried before the system is returned to service.

Substantiation: This proposal is being submitted by me as chair of the Technical Committee on Cultural Resources on behalf of the committee at its direction via a vote at its November 2011 meeting. The same proposal was balloted and submitted in the committee's name during the last revision cycle, but could not be balloted for this cycle due to timing restrictions.

The introduction of water into a system that is normally dry promotes general corrosion of the piping and increases the likelihood of MIC. The Technical Committee on Cultural Resources believes that pitching the system piping to allow water to drain back to the riser is insufficient to ensure that water is removed from the system piping. Various methods are available to remove water from the piping, such as the introduction of dry air or nitrogen.

Committee Meeting Action: Reject

Committee Statement: Not necessary to leave the system out of service the amount of time required to be dried. Additional guidance was provided last cycle in A.14.4.4.3.2 to address this issue. Owners can require standard operating procedures beyond the minimum requirements of NFPA 25.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 33

25-256 Log #166 **Final Action: Reject**
(13.4.3.2.6)

Submitter: Russell B. Leavitt, Telgian Corporation

Recommendation: Revise as follows:

13.4.3.2.6 Double Interlock ~~P~~preaction systems shall be tested once every 3 years for air leakage using one of the following test methods:

Remainder of section to remain the same.

Substantiation: Double interlock systems are the only systems for which this test makes sense. Single interlock systems contain no air under pressure and non-lock systems have low air pressure--typically 7 to 10psi. Neither of these systems require an air test at system acceptance. To require a test after the system is in service that does not follow-up on a test done for the original installation makes no sense and is possibly punitive to the owner.

Committee Meeting Action: Reject

Committee Statement: The test provides a check of the integrity of the piping system and does not require a 40 psi test for 2 hours, but provides an alternate method.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 30 Negative: 3

Explanation of Negative:

ELVOVE, J.: Though I would prefer to remove this entire section as proposed by 25-257, given 25-257 was rejected, accepting this proposal which limits the 3 year trip test to only double-interlocking systems would be a small compromise.

FANTAUZZI, J.: This amendment will impose air pressure leakage tests on existing systems that are not required on the initial test of new systems per NFPA 13.

LEAVITT, R.: The original proposal should be accepted. This requirement is, in my opinion, a test looking for a problem in which there is no evidence that one exists. I reiterate my argument that we are requiring a test for non-interlock and single interlock preaction systems that is not required during the original system acceptance and I am not aware of any problems with these systems exhibiting problems with integrity.

Comment on Affirmative:

FELD, J.: 1) Non-interlocked preaction systems operate upon activation of a detector or sprinkler. For the system to sense the activation of a sprinkler the system piping must be under air pressure.
2) Single interlocked preaction systems having more than 20 sprinklers require supervision of the piping - air supervision.
3) Double interlocked systems require air supervision of piping
Therefore only single interlocked systems with 20 or fewer sprinklers are not required to have air supervision. Some of these systems have air supervision giving the owner some added assurance of pipe integrity. Those they do not have any air supervision will not be equipped with a compressor and thus will not be capable of an air test (at least not easily so). Therefore, testing for air supervision is reasonable. The NFPA 25 test is either a 2 hour or 4 hour test every 3 years. This is far less than the acceptance test of 24 hours. Owners who desire a preaction system believe that these systems will prevent an accidental discharge from a spurious activation of a sprinkler or a leaking pipe. A periodic air test is a cheap way of maintaining the system to this end.
The low air alarm is of value only where there is a fire alarm system which is connected to a supervising station which is not always provided. A failed low pressure alarm may result in the compressor running until it also fails.
Detection devices can be pneumatic
The Committee Statement is misleading. A 40 psi/2 Hour test is one option that is required by NFPA 25.

FIELD, G.: I agree with the Committee's action to reject the proposal and continue to require air testing on preaction systems. We have found small unsupervised preaction systems covering sensitive electronic equipment with damaged piping causing water damage upon a false system trip. An air test would have discovered damaged piping and eliminated water damage. This comment also applies to 25-258 (Log #329).

25-257 Log #245 **Final Action: Reject**
(13.4.3.2.6)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education

Recommendation: Delete requirement as shown below::

~~13.4.3.2.6 Preaction systems shall be tested once every 3 years for air leakage, using one of the following test methods:~~
~~(1) A pressure test at 40 psi (3.2 bar) for 2 hours. The system shall be permitted to lose up to 3 psi (0.2 bar) during the duration of the test. Air leaks shall be addressed if the system loses more than 3 psi (0.2 bar) during this test.~~
~~(2) With the system at normal system pressure, shut off the air source (compressor or shop air) for 4 hours. If the low air pressure alarm goes off within this period, the air leaks shall be addressed.~~

Substantiation: This is a continuation of a discussion of Proposal 25-171 and Comment 25-93 of the last revision cycle that affects other like-minded users of this document: US General Services Administration, the US Department of Energy and the US Veteran's Hospital Administration. The education facilities industry agrees with the negative position, best written in the substantiation of the negative votes in the final ballot. That substantiation from the last cycle is reprinted here for the convenience of the committee:

LARRIMER, P.: A low air alarm provides continuous monitoring of the air pressure in a preaction system. There is no need to shut off the compressor to check for an arbitrary leakage rate as established by this new requirement for a great many of the preaction systems installed.

LEAVITT, R.: This text requires a test for all preaction systems that is only appropriate for double interlock systems. NFPA 25 should not mandate a test for maintenance that is not required for the system acceptance or is more stringent than that required for system acceptance. NFPA 13 24.2.2 requires an air test for dry pipe and double interlock preaction systems but no air test is specified for single and non-interlock systems. This test requirement will result in system modifications or repairs for single and non-interlock preaction systems that are unnecessary and punitive to the building owner.

ELVOVE, J.: Concur with Mr. Leavitt's statement. Unnecessary to subject all pre-action systems to this requirement.

SAIDI, J.: Do not agree with committee action. The submitter's substantiation was correct and should have been accepted.

Committee Meeting Action: Reject

Committee Statement: The test provides a check of the integrity of the piping system and does not require a 40 psi test for 2 hours, but provides an alternate method.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 28 Negative: 5

Explanation of Negative:

DRYSDALE, M.: The low air pressure alarm is adequate.

ELVOVE, J.: This should be accepted as there's no reason to subject all pre-action systems to the 3 year trip test. It's not a one-size-fits-all.

LARRIMER, P.: There is no reason for this test. It was never justified.

LEAVITT, R.: I agree with the submitter in principle. I would rather see no preaction air test requirement (including double-interlock systems) rather than all preaction systems subjected to it.

SAIDI, J.: We should not subject all pre-action systems to this requirement. The submitters' proposal should have been accepted.

Comment on Affirmative:

FELD, J.: See my Comment on Affirmative on Proposal 25-256 (Log #166).

25-258 Log #329 **Final Action: Reject**
(13.4.3.2.6)

Submitter: Peter A. Larrimer, US Department of Veterans Affairs

Recommendation: Delete 13.4.3.2.6.

Substantiation: If the low air alarm doesn't provide a supervisory signal that the preaction system is leaking, then the leakage itself will be self evident as the system will trip and send an alarm. There has been no justification to add this test.

Deleting this requirement to test for pipe leakage when the pipe is already monitored will not affect the operation of any system.

Committee Meeting Action: Reject

Committee Statement: The test provides a check of the integrity of the piping system and does not require a 40 psi test for 2 hours, but provides an alternate method. The test is to verify system integrity and not just to test whether the air compressor can maintain operating pressure.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 29 Negative: 4

Explanation of Negative:

DRYSDALE, M.: The low air pressure alarm is adequate.

ELVOVE, J.: See my comment on 25-257.

LARRIMER, P.: There is no reason for this test. It was never justified.

LEAVITT, R.: See my Explanation of Negative on Proposal 25-257 (Log #245).

Comment on Affirmative:

FELD, J.: See my Comment on Affirmative on Proposal 25-256 (Log #166).

25-259 Log #181 **Final Action: Accept**
(13.4.3.2.7)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change title to 13.4.3.2.7 as shown.
13.4.3.2.7 Deluge System Pressure Readings.
Substantiation: This change clarifies that this section only applies to deluge systems and not to a preaction system. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-260 Log #267 **Final Action: Accept in Principle**
(13.4.4.1.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise text to read as follows:
Delete 13.4.4.1.1
Delete 13.4.4.1.1.1
Renumber 13.4.4.1.1.2 as 13.4.4.1.1 as follows:
13.4.4.1.1 ~~13.4.4.1.1.2~~ Low temperature alarms, if installed in valve enclosures, shall be inspected annually at the beginning of the heating season to ensure that the wires are connected and that the device appears to be in working order.
Substantiation: There is no way for the inspector to know (on any given day) whether the heating equipment is working. If the inspector goes into the enclosure on a day where the temperature is over 40 degrees, there is no way to determine if the heating equipment is operational. There is no way to simulate a cold condition to see if the heating comes on.
The building owner is already required under section 4.1.1.1 to make sure that adequate heat is provided in areas with water-filled piping. This is a more appropriate way to address this issue as an ongoing maintenance requirement rather than a periodic inspection.
The additional language at the end of the alarm inspection is just to tell the inspector what they are looking for during the inspection. Without this information, the inspector does not know what they are doing with the inspection.
Committee Meeting Action: Accept in Principle
Reject deleting 13.4.4.1.1 & 13.4.4.1.1.1
Modify 13.4.4.1.1 Valve enclosures ~~enclosure heating equipment~~ for preaction and deluge valves subject to freezing shall be inspected daily during cold weather to verify ~~for its ability to maintain~~ a minimum temperature of 40F
Modify 13.4.4.1.2 Low temperature alarms, if installed in valve enclosures, shall be inspected annually at the beginning of the heating season to verify that they are free of physical damage.
Committee Statement: The technical committee acknowledges that the requirements of 13.4.4.1.1 and 13.4.4.1.1.1 are addressed in a general sense in chapter 4, however retaining this language provides additional direction. This is consistent with modifications to 25-44 (Log #95) and 25-252 (Log #268).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-261 Log #287 **Final Action: Accept**
(13.4.4.1.2)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise 13.4.4.1.2 so that it is only a title as follows:
13.4.4.1.2 Gauges ~~shall be inspected weekly~~.
Substantiation: The section is redundant with 13.4.4.1.2.5 and contradicts 13.4.4.1.2.4. It needs to just be an introduction to the fact that gauges will be discussed in the following sections.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-262 Log #182 **Final Action: Reject**
(13.4.4.2.2.4 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add new requirement 13.4.4.2.2.4 as shown.
13.4.4.2.2.4 When refilling a dry system, the air supply shall be capable of restoring normal air pressure in the system within 30 minutes.
Substantiation: NFPA 13 requires that the air supply be sufficient to fill the system in 30 minutes or less. NFPA 25 should also include this requirement when refilling the system after performing the annual or three year trip test. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: This is an installation requirement and assigns no additional action.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-263 Log #270 **Final Action: Accept**
(13.4.4.2.9)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise the section as follows:
13.4.4.2.9 Dry pipe systems shall be tested once every 3 years for ~~air~~ gas leakage, using one of the following test methods:
(1) A gas (air or nitrogen) pressure test at 40 psi (3.2 bar) shall be performed for 2 hours
(a) The system shall be permitted to lose up to 3 psi (0.2 bar) during the duration of the test.
(b) ~~Air~~ Gas leaks shall be addressed if the system loses more than 3 psi (0.2 bar) during the test.
(2) With the system at normal system pressure, the ~~air~~ gas source (nitrogen supply, compressor or shop air) shall be shut off for 4 hours. If the low ~~air~~ pressure alarm goes off within this period, the ~~air~~ leaks shall be addressed.
Substantiation: Nitrogen is recognized as a legitimate gas to use in dry-pipe systems and is gaining popularity due to its ability to prevent corrosion within the piping. Where nitrogen is used, the system integrity needs to be maintained, just as with air.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-264 Log #5 **Final Action: Accept in Principle**
(13.5.2)

Submitter: James Everitt, Western Regional Fire Code Development Committee
Recommendation: Revise text as follows:
13.5.2 Hose Connection Pressure Regulating Devices ~~Reducing Valves~~
13.5.2.1 All ~~valves~~ devices shall be inspected annually to verify the following:
• (1) The handwheel is not broken or missing.
• (2) The outlet hose threads are not damaged.
• (3) No leaks are present.
• (4) The reducer and the cap are not missing.
13.5.2.2* A full flow test shall be conducted on each ~~valve~~ device at 5-year intervals and shall be compared to previous test results.
13.5.2.2.1 Adjustments shall be made in accordance with the manufacturer's instructions.
13.5.2.3 A partial flow test adequate to move the device ~~valve~~ from its seat shall be conducted annually.
Substantiation: NFPA 14 requires a permanently installed drain riser to be provided adjacent to each standpipe equipped with pressure-regulating devices to facilitate tests of each device. The drain riser is required to be sized large enough to handle the full flow required from the largest pressure-regulating device (NFPA 14: 7.11.1). A proposal to change the requirement in NFPA 14 to replace the phrase "pressure-regulating device" with "pressure reducing valve" so that the drain riser requirement would be eliminated was rejected by the technical committee. In their justification the committee stated that their intent was for all pressure-regulating valves to be tested at full flow. Currently, NFPA 25 does not include a requirement to test all pressure-regulating devices at full flow, only pressure reducing valves. The two standards should be consistent.
Committee Meeting Action: Accept in Principle
Accept the proposed changes with the following modifications:
(1)make global change (ie 13.5.3 and 13.5.4) to change "reducing valve(s)" to "regulating device"
(2)Change
(4) The ~~reducer~~ hose adapter and the cap are not missing.
(3) Accept the remainder of the proposed language
Committee Statement: Terminology changes are consistent with the remainder of the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-265 Log #94 **Final Action: Accept in Part**
(13.5.6.2 and 13.5.6.2.1)

Submitter: Howard G. Clay, VSC Fire & Security, Inc.
Recommendation: Revise text to read as follows:
Class I and Class III standpipe system hose valves shall be tested annually by fully opening and closing the valves and partially flowing water.
Substantiation: A partial flow of water should become a part of this requirement for the purpose of protecting the seat by ensuring there are no obstructions within the valve body after fully opening the valve. A tapped cap and ball valve will suffice to meet this requirement through a partial flow into a bucket to confirm the hose valve is not completely obstructed while allowing the technician to view the quality of the water discharged from the standpipe. 6.3.1.5. of NFPA 25, 2008 edition reads, "the test [main drain] shall be performed at the low point drain for each standpipe or the main drain test connection where the supply main enters the building (where provided)." Since this drain test is not required to be performed from the low point drain of the

standpipe, it is not uncommon to find the lower level hose valve obstructed with packed debris. The partial flow of the hose valve annually may reveal this.
Committee Meeting Action: Accept in Part
Accept : by FULLY opening
Reject: and partially flowing water.
Committee Statement: This criteria is simply to exercise the valve as discussed in 25:A.13.5.6.2.1. No data supporting the need to partially flow water.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-266 Log #183 **Final Action: Accept in Principle**
(13.5.7.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add a title to section 13.5.7.1 as shown.
13.5.7.1 Circulation Relief Valves. All circulation relief valves shall be inspected weekly.
Substantiation: This change highlights that this section applies to circulation relief valves. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
13.5.7 Fire Pump ~~Pressure~~ Relief Valves
13.5.7.1 Circulation Relief Valves
13.5.7.1.1 All circulation relief valves shall be inspected weekly.
13.5.7.1.2 ~~1~~ The inspection shall verify that water flows through the valve when the fire pump is operating at shutoff pressure (i.e.,churn) to prevent the pump from overheating.
13.5.7.1.3 ~~.2~~ During the annual fire pump test, the closure of the circulation relief valve shall be verified to be in accordance with the manufacturer's specifications.
Committee Statement: Modifications are in line with intent of submitter and restructure the section.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
UNDERWOOD, D.: Have submitter resubmit at ROC as this does not with code of monthly pump testing.

25-267 Log #184 **Final Action: Accept in Principle**
(13.5.7.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add a title to section 13.5.7.2 and revise as shown.
13.5.7.2 Main Pressure Relief Valves. All main pressure relief valves shall be inspected weekly.
Substantiation: This change highlights that this section applies to main pressure relief valves. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
13.5.7.2 Main Pressure Relief Valve
13.5.7.2.1 All main pressure relief valves shall be inspected weekly.
13.5.7.2.2 ~~.1~~ The inspection shall verify that the pressure downstream of the relief valve fittings in the fire pump discharge piping does not exceed the pressure for which the system components are rated.
13.5.7.2.3 ~~.2~~ During the annual fire pump flow test, the pressure relief valve shall be verified to be correctly adjusted and set to relieve at the correct pressure and to close below that pressure setting.
Committee Statement: Modifications are in line with intent of submitter and simply restructure the section.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Does not track for monthly electrical testing. Should resubmit for ROC stage.
UNDERWOOD, D.: See 25-266.

25-268 Log #283 **Final Action: Reject**
(13.6.1.2, 13.6.1.2.1, and 13.6.1.2.2)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise the sections as follows:
13.6.1.2* Reduced pressure assemblies (RPA) and reduced pressure detector assemblies (RPDA) that do not comply with 13.6.1.2.1 shall be inspected weekly to ensure that the differential-sensing valve relief port is not continuously discharging and the OS&Y isolation valves are in the normal open position.
13.6.1.2.1 ~~Valves~~ Reduced pressure assemblies (RPA) and reduced pressure detector assemblies (RPDA) that are secured with locks or electronically supervised in accordance with applicable NFPA standards shall be inspected monthly to ensure that the differential-sensing valve relief port is not continuously discharging and the OS&Y isolation valves are in the normal open position.
~~13.6.1.2.2~~ 13.6.1.3 After any testing or repair...
Substantiation: The original intent of NFPA 25 was to match the inspection rules for backflow devices with the inspection rules for control valves (since there are two control valves as a part of each backflow assembly). But the rules have never quite matched up. Although the inspection of the valves is okay, the inspection of the relief port is required to be weekly, regardless of the supervision on the valve. So, even if you supervise the control valves, you need to inspect the relief port weekly, which is onerous.
The renumbering of section 13.6.1.2.2 is suggested because this rule should apply to all backflow preventers, not just RDA assemblies. In its currently location, it only applies to RPA's.
Committee Meeting Action: Reject
Committee Statement: Whether or not the valves are locked has no impact on the operation of the differential sensing valve relief port. It is cleaner to explicitly address the valves instead of calling it the RP assembly and RPD assembly.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-269 Log #185 **Final Action: Accept in Principle**
(13.6.1.3 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change the charging paragraph in section 13.6.1 and add new requirement for backflow prevention assemblies as shown.
13.6.1 Inspection. Inspection of backflow prevention assemblies shall be as described in 13.6.1.1 through 13.6.1.~~2.2~~ 3.
13.6.1.3 Backflow prevention assemblies shall be inspected internally every 5 years to verify that all components operate correctly, move freely, and are in good condition.
Substantiation: Backflow preventers have the same problems that check valves have over time. Although they are required to be exercised at least once a year with a forward flow test, the interiors of these valves still need to be inspected periodically and maintained in accordance with the manufacturer's instructions. Having these devices on the same inspection cycle as other check valves, strainers, orifices, and internal pipe makes the best use of time and resources to perform this inspection. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Accept language and add an annex systems:
A.13.6.1.3 Where annual maintenance includes an internal inspection performed by a qualified person this requirement is satisfied.
Committee Statement: The annex language allows maintenance and inspection performed by qualified people responsible for the backflow prevention device to satisfy this requirement.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
ELVOVE, J.: This is a new requirement that increases the cost of ITM. There should be data substantiating a need for this requirement rather than having it based upon inspection frequencies of other devices. This committee can't keep adding new inspection and testing requirements with specific frequencies without technical substantiation.
LARRIMER, P.: Testing the backflow preventer is outside the scope of this standard. The forward flow tests already required ensure that the backflow preventer does not prevent the water based system from working. Whether it prevents backflow or not is not a issue with respect to NFPA 25 systems and this requirement should be left others who are responsible for preventing backflow into the potable water system.
Comment on Affirmative:
FIELD, G.: Add the requirement of a 5 year internal inspection to Table 13.1.1.2 under Backflow Prevention Assemblies Inspection.
Backflow Prevention Assemblies
Backflow Prevention Assemblies 5 years 13.6.1.3

25-270 Log #266 **Final Action: Reject**
(13.6.2.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add "as provided by the owner" to 13.6.2.1 and split the section into two sentences so that they read as follows:
13.6.2.1 All backflow preventers installed in fire protection system piping shall be tested annually by conducting a forward flow test of the system at the ~~designed~~ system flow rate as provided by the owner. The flow rate shall include ~~including~~ hose stream demand where hydrants or inside hose stations are located downstream of the backflow preventer.
Substantiation: The person performing the test is not in a position to determine the original design flow rate of the system. The owner needs to be responsible for providing this information.
The sentence needs to be split into two sentences because of the placement of the comma after "demand". This makes it appear that the test only needs to be run if there are hydrants or inside hose stations downstream of the backflow device. Actually, the intent of NFPA 25 is to run the test on all backflow devices, but only include the flow for hose demands if these additional components are there.

Committee Meeting Action: Reject
Committee Statement: Current wording as modified by 25-271 (Log #CP15) is more definitive.
The issue of "Provided by the Owner" is a global issue see 25-232 (Log #265).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
FIELD, G.: Change the reference under Committee Statement from 25-44 (Log #CP15) to 25-271 (Log #CP15).

25-271 Log #CP15 **Final Action: Accept**
(13.6.2.1, 13.6.2.2 (New))

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Revise 13.6.2.1 to read as follows:
13.6.2.1 All backflow preventers installed in fire protection system piping shall be exercised annually by conducting a forward flow test at a minimum flow rate of the system design.
Add new 13.6.2.2 and renumber subsequent sections accordingly:
13.6.2.2 Where hydrants or inside hose stations are located downstream of the backflow preventer, the forward flow test shall include hose stream demand.
Substantiation: This change was needed to better reflect that the backflow preventer is not a precise test whereby the flow through it must be measured but effort to exercise the device at flows as near as possible to the system demand.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been accepted in principle: the wording "at a minimum flow rate" is confusing and should be reworded.

25-272 Log #121 **Final Action: Accept**
(13.6.2.1.1)

Submitter: Roland J. Huggins, American Fire Sprinkler Association, Inc.
Recommendation: Delete the following text:
~~**13.6.2.1.1** For backflow preventers sized 2 in. (50 mm) and under, the forward flow test shall be acceptable to conduct without measuring flow, where the test outlet is of a size to flow the system demand.~~
Substantiation: This section implies that a measured flow is required for Backflow preventers (BFP) larger than 2 in when nothing in 13.6.2.1 states such a requirement. There are other means to identify that the system demand is flowing through the BFP as discussed in A.13.6.2.1 It also needs to be kept in mind that we are simply exercising the BFP to ensure it will fully open at approximately the system demand. A high degree of accuracy regarding the volume of water is not warranted. Additionally, BFP's are subjected to an annual internal inspection as part of the cross connection protection program.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-273 Log #122 **Final Action: Accept**
(13.6.2.1.3)

Submitter: Roland J. Huggins, American Fire Sprinkler Association, Inc.
Recommendation: Delete the following text:
~~**13.6.2.1.3** Where connections do not permit a full flow test, tests shall be completed at the maximum flow rate possible.~~
Substantiation: The text is redundant with 13.6.2.2 except one says "tests shall be completed" and the other says "conducted".
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-274 Log #285 **Final Action: Accept in Part**
(13.6.2.1.4)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise 13.6.2.1.4 as follows:
13.6.2.1.4 The forward flow test shall not be required where annual fire pump testing causes the system ~~demand~~ flow rate as provided by the owner to flow through the backflow preventer device.
Substantiation: The use of the term "demand" is being interpreted by some AHJ's as applying to both flow and pressure. There is no intent here on measuring or dealing with pressure. The only reason for this test is to create flow in order to exercise the internally loaded check valves. Replacement of the term "demand" helps to clarify the standard.
Committee Meeting Action: Accept in Part
Accept: Flow rate
Reject: ~~As provided by owner~~ – global issue
Committee Statement: The issue of "Provided by the Owner" is a global issue see Proposal 25-232 (Log #265).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-275 Log #284 **Final Action: Reject**
(13.6.2.2)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Delete 13.6.2.2.
Substantiation: Redundant with 13.6.2.1.3.
Committee Meeting Action: Reject
Committee Statement: The redundancy was addressed in proposal 25-273 (Log #122).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-276 Log #167 **Final Action: Accept**
(13.6.3.1)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Revise as follows:
13.6.3.1 Maintenance of all backflow assemblies shall be conducted by a ~~trained~~ qualified individual following the manufacturer's instructions in accordance with the procedure and policies of the authority having jurisdiction.
Substantiation: The word "qualified" is defined by the standard and is appropriate term for use in this section.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-277 Log #168 **Final Action: Accept**
(13.6.3.2)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Delete entire section.
~~**13.6.3.2** Rubber parts shall be replaced in accordance with the frequency required by the authority having jurisdiction and the manufacturer's instructions.~~
Substantiation: This section is redundant based on the wording of 13.6.3.1 which stipulates that all maintenance be in accordance with the AHJ and the manufacturer. The specificity of this section serves no purpose.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-278 Log #8 **Final Action: Accept**
(13.7.1)

Submitter: Robert Bourke, Northeastern Regional Fire Code Development Committee
Recommendation: Revise text to read as follows:
13.7.1 Fire department connections shall be inspected quarterly.
The inspection shall verify the following:
(1) The fire department connections are visible and accessible.
(2) Couplings or swivels are not damaged and rotate smoothly.
(3) Plugs or caps are in place and undamaged.
(4) Gaskets are in place and in good condition.
(5) Identification signs are in place.
(6) The check valve is not leaking.
(7) The automatic drain valve is in place and operating properly.
(8) The fire department connection clapper(s) is in place and operating properly.
(9) Interior of the connection shall be inspected for obstructions
~~**13.7.2** If fire department connection plugs or caps are not in place, the interior of the connection shall be inspected for obstructions, and it shall be verified that the fire department connection clapper is operational over its full range.~~
Substantiation: The proposed edition of a new (9) does a few things, one makes the inspector remove the cap (especially locking) to ensure it can be removed and has not been damaged or oxidized to the connection, second no one is sure when the cap was placed on the FDC. It could have been off for weeks and placed on before the inspection, the inspector would then never perform Section 13.7.2 as a cap was in place. The interior should be inspected every quarter to see if debris has been introduced into the connection, thus making Section 13.7.2 no longer needed.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-279 Log #276 **Final Action: Accept in Principle**
(13.7.5 (New))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add a new 13.7.5 as follows:
13.7.5 The piping from the fire department connection to the fire protection systems shall be hydrostatically tested at 150 psi for two hours at least once every five years.

Substantiation: The piping from the fire department connection to the fire protection system is dry most of the time and subject to corrosion due to the moist atmosphere. Failures of this piping have occurred when fire departments pump into the connections.

The 150 psi pressure was selected since this is the pressure most frequently used in the standard operating procedure of fire departments when supporting fire protection systems.

Committee Meeting Action: Accept in Principle

Revise text to read as follows:

13.7.5 The piping from the fire department connection to the fire ~~protection systems~~ department check valve shall be hydrostatically tested at 150 psi for two hours at least once every five years.

Committee Statement: Stipulating the fire department check valve gives a definitive end point to the test.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 30 Negative: 3

Explanation of Negative:

DRYSDALE, M.: No substantiation was provided to support this as being an issue in practice or to support the 5 yr. test frequency.

ELVOVE, J.: Yet another new requirement. See my comment on 25-269.

LARRIMER, P.: The justification is not adequate for mandating this test.

Comment on Affirmative:

FIELD, G.: Add the requirement for Testing of Fire Department Piping every 5 years per new section 13.7.5 to Table 13.1.1.2.

25-280 Log #288 **Final Action: Reject**
(Chapter 14)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.

Recommendation: Change the title of Chapter 14 to "Internal Conditions"

Substantiation: This more accurately describes the entire contents of the chapter. "Obstruction Investigation" is just a portion of what is included in the chapter and is an inappropriate title.

Committee Meeting Action: Reject

Committee Statement: Proposal 25-281 (Log #330) confirms the title to be Obstruction Investigation. This term is used throughout the standard and is more appropriate to describe the actions outlined in this chapter.

Number Eligible to Vote: 33

Ballot Results: Affirmative: 32 Negative: 1

Explanation of Negative:

RAY, R.: This proposal should have been accepted. The submitter is 100% correct in his substantiation - chapter 14 includes more than just "Obstruction Investigations" and hence the title needs to be revised.

25-281 Log #330 **Final Action: Accept**
(Chapter 14)

Submitter: Peter A. Larrimer, US Department of Veterans Affairs

Recommendation: Rewrite Chapter 14 as follows:

Delete: A.14.2.1.6, A.14.2.2,

Move A.14.2.1.3 to A.14.3.1 and adding it to the existing annex not as the first paragraph.

Retain other annex notes.

Chapter 14 Obstruction Investigation

14.1* General. This chapter shall provide the minimum requirements for conducting investigations of fire protection system piping for possible sources of materials that could cause pipe blockage.

14.2 ~~Internal Inspection of Piping~~ Obstruction Investigation and Prevention.

~~**14.2.1** Except as discussed in 14.2.1.1 and 14.2.1.4 an inspection of piping and branch line conditions shall be conducted every 5 years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.~~

~~**14.2.1.1** Alternative nondestructive examination methods shall be permitted.~~

~~**14.2.1.2** Tubercules or slime, if found, shall be tested for indications of microbiologically influenced corrosion (MIC).~~

~~**14.2.1.3*** If the presence of sufficient foreign organic or inorganic material is found to obstruct pipe or sprinklers, an obstruction investigation shall be conducted as described in Section 14.3.~~

~~**14.2.1.4** Non-metallic pipe shall not be required to be inspected internally.~~

~~**14.2.1.5** In dry pipe systems and pre-action systems, the sprinkler removed for inspection shall be from the most remote branch line from the source of water that is not equipped with the inspector's test valve.~~

~~**14.2.1.6*** Inspection of a cross main is not required where the system does not have a means of inspection.~~

~~**14.2.2*** In buildings having multiple wet pipe systems, every other system shall have an internal inspection of piping every 5 years as described in 14.2.1.~~

~~**14.2.2.1** During the next inspection frequency required by 14.2.1, the alternate systems not inspected during the previous inspection shall have an internal inspection of piping as described in 14.2.1.~~

~~**14.2.2.2** If the presence of foreign organic and/or inorganic material is found in any system in a building during the 5 year internal inspection of piping, all systems shall have an internal inspection.~~

~~**14.3 Obstruction Investigation and Prevention.**~~

14.3~~2~~.1* An obstruction investigation shall be conducted for system or yard main piping wherever any of the following conditions exist:

(1) Defective intake for fire pumps taking suction from open bodies of water

(2) The discharge of obstructive material during routine water tests

(3) Foreign materials in fire pumps, in dry pipe valves, or in check valves

(4)*Foreign material in water during drain tests or plugging of inspector's test connection(s)

(5) Plugged sprinklers

(6) Plugged piping in sprinkler systems dismantled during building alterations

(7) Failure to flush yard piping or surrounding public mains following new installations or repairs

(8) A record of broken public mains in the vicinity

(9) Abnormally frequent false tripping of a dry pipe valve(s)

(10) A system that is returned to service after an extended shutdown (greater than 1 year)

(11) There is reason to believe that the sprinkler system contains sodium silicate or highly corrosive fluxes in copper systems

(12) A system has been supplied with raw water via the fire department connection

(13)* Pinhole leaks

(14) A 50 percent increase in the time it takes water to travel to the inspector's test connection from the time the valve trips during a full flow trip test of a dry pipe sprinkler system when compared to the original system acceptance test.

14.3~~2~~.2* Systems shall be examined for internal obstructions where conditions exist that could cause obstructed piping.

14.3~~2~~.2.1 If the condition has not been corrected or the condition is one that could result in obstruction of the piping despite any previous flushing procedures that have been performed, the system shall be examined for internal obstructions every 5 years.

14.3.2.2 The investigation shall be accomplished by i~~I~~nternal examination ~~shall be performed~~ at the following four points:

(1) System valve

(2) Riser

(3) Cross main

(4) Branch line

14.3.2.2.3 Alternative nondestructive examination methods shall be permitted.

14.3.2.3* If an obstruction investigation carried out in accordance with 14.2.1 indicates the presence of sufficient material to obstruct pipe or sprinklers, a complete flushing program shall be conducted by qualified personnel.

14.~~4~~3Ice Obstruction. Dry pipe or preaction sprinkler system piping that protects or passes through freezers or cold storage rooms shall be inspected internally on an annual basis for ice obstructions at the point where the piping enters the refrigerated area.

14.~~4~~3.1 Alternative nondestructive examinations shall be permitted.

14.~~4~~3.2 All penetrations into the cold storage areas shall be inspected and, if an ice obstruction is found, additional pipe shall be examined to ensure no ice blockage exists.

Add New Annex Note: A.14.2.1 (13) Tubercules or slime, if found, should be tested for indications of microbiologically influenced corrosion (MIC).

Substantiation: 1) The requirement to open up a piping system every 5 years is not warranted and is has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation to do.

2) The reliability of sprinklers as shown in the paper by NFPA "U.S. EXPERIENCE WITH SPRINKLERS AND OTHER AUTOMATIC FIRE EXTINGUISHING EQUIPMENT" John Hall Jr. February 2010 found at: http://www.nfpa.org/assets/files/pdf/ossprinklers.pdf clearly shows that obstructions in piping are not a significant factor for the reliability of sprinkler systems. Costs to perform this onerous inspection of all systems is truly not warranted and thus the mandatory 5 year requirement has been removed. For one example, I have a campus where the contractor has provided a quote for ~$19,000 for an annual inspection to the requirements of NFPA 25 and ~$240,000 for a fire year inspection to NFPA 25. These types of exorbitant quotes for the five year inspection is not unusual.

3) The obstruction investigation requirements have been changed back to the same requirements as those that were in the 1998 Edition except that:

a) The manual of style changes that were made were kept.

b) Triggers #13 (Pin hole leaks) and #14 (A 50 percent increase in the time it takes water to travel to the inspector's test connection from the time the valve trips during a full flow trip test of a dry pipe sprinkler system when compared to the original system acceptance test) in Existing Section 14.3.1 that were added to the code since the 1998 Edition were also kept.

c) An annex note was added to Trigger #13 (Pin hole leaks) to address MIC. Since pin hole leaks was added as the trigger from MIC, the suggestion to check for MIC once pin hole leaks are found was added to the annex. This is important in that MIC is adequately addressed and explained in the Annex D material.

d) The existing annex note to 14.2.1.3 was deleted since it is covered in 14.2.3.

e) 14.2.1.4 was deleted because if there is a problem identified by a trigger, even plastic pipe needs to be inspected.

f) A.14.2.1.6 was deleted. The existing criteria mandated inspections of pipe, but only if the piping is accessible. This doesn't really make sense if there truly is a problem. If an obstruction investigation indicates that pipe has sufficient material to block it, then there is no exception for remedying the situation even

if the pipe is not readily accessible or it doesn't have flushing connections.
g) 14.2.2 thru 14.2.2.2 and A14.2.2 was deleted since mandatory inspections of systems are not warranted unless there is a trigger.
4) Note that where a problem is identified, possibly such as MIC where pin hole leaks triggered an inspection, 14.3.2.1 would still require an investigation every 5 years even with flushing unless the condition could be corrected properly.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 29 Negative: 4
Explanation of Negative:

FLEMING, R.: We believe the 5-year random internal inspection is useful and should be retained.

MYERS, T.: Internal exam should not be removed. There has been sufficient evidence of sufficient evidence of internal issues from pipe condition, blockage etc. to keep this as requirement. An internal pipe blockage etc. could act just as a close valve making system not operate. Insurance Services Office rates a building as non-sprinklered if it does not have internal pipe exams on dry systems. They have over 600,000 commercial buildings in their system so must know something about these potential problems.

RAY, R.: This proposal should have been rejected. Verbage regarding performing inspections looking for obstructions in piping have been in the standard since its inception in 1992 (though in chapter 2 at the time, and worded slightly differently in some editions). The basic subject at hand and the potential ramifications to the proper operation of a fire sprinkler system has been clearly known and understood by the fire protection community for many many years. I am in possession of the March 1959 edition of "Internal Cleaning of Sprinkler Pipe" published by the National Board of Fire Underwriters (first published in 1941). The committee erred greatly in accepting removal of this required inspection at 5 year intervals. At my firm we have found numerous times that systems are loaded with debris (from whatever source); this debris has ranged from pipe coupons, sludge, scale, and work gloves to chunks of asphalt, none of which were preceded by any of the 14 "triggers" contained in Chapter 14. We are currently investigating a building that contains 6000 pendent ESFR sprinklers on 3" branchlines where we found pieces of asphalt as large as my fist and rocks in the piping.

VICTOR, T.: The committee should reject this proposal and consider accepting during the comment phase the other proposals submitted to further clarify the requirements of this chapter. Internal pipe inspections that have been performed since the requirement was first introduced in the 2002 edition have uncovered numerous hidden problems in systems from MIC, to rust and scale, to sludge, to other obstructing materials that could lead to clogged sprinklers or pipes and system failures or partial system failures. These problems were not identified by one of the triggers that require an obstruction investigation, but were only revealed by an internal pipe inspection.
The submitters claim that the cost to perform this inspection is onerous is not creditable. First, every system in a building doesn't need to be inspected as the submitter claims. The provision was added in the 2011 edition that every other system is required to be inspected every 5 years as long as there aren't any problems found. Second, the cost of performing the 5 year internal pipe inspection on a system is not as high as the submitter claims, if the other 5 year inspection requirements of NFPA 25 were being performed at the same time. Did the submitter get two proposals, one to perform the 5 year internal inspection of all check valves, strainers, filters and restricting orifices, and an additional proposal to perform the internal pipe inspection at the same time? I would assume no, since the submitter's cost estimates were not presented by breaking out these two costs separately. The requirement to internally inspect all check valves, alarm valves, strainers, filters, and orifices every 5 years has been in the standard since the first edition in 1992, and is not being deleted, and should be considered when performing a differential cost estimate.
The 5 year internal pipe inspection is needed to pro actively determine the internal condition of system piping to comply with the purpose of NFPA 25 to "ensure a reasonable degree of protection for life and property from fire", and must remain in the standard.

25-282 Log #145 **Final Action: Reject**
(Chapter 14, Title)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change the title of Chapter 14 as shown.
Internal Pipe Inspection and Obstruction Investigation
Substantiation: Chapter 14 involves more than just obstruction investigation. Internal pipe inspections are critical to assess the condition of fire protection system piping and should be included in the chapter title. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The requirement to open up a piping system every 5 years is not warranted and has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation to do. See action on Proposal 25-281 (Log #330).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-283 Log #140 **Final Action: Reject**
(14.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise the title of section 14.2 as shown.
14.2 Periodic Internal Inspection of Piping.
Substantiation: This section describes internal pipe inspections that are to be performed on a periodic basis and not as needed. The revised section title clarifies this. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: Proposal 25-281 (Log #330) eliminated the periodic internal inspection of pipe. The term periodic is not used anywhere else in the document. The requirement to open up a piping system every 5 years is not warranted and has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation to do.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-284 Log #141 **Final Action: Reject**
(14.2.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise 14.2.1 as shown.
14.2.1 Except as discussed in 14.2.1.1 and 14.2.1.4 an inspection of piping and branch line conditions shall be conducted every 5 years by visually examining the internal piping in at least the following two places for the purpose of inspecting for the presence of foreign organic and inorganic material.
(1) By opening a flushing connection at the end of one main ~~and~~
(2) bBy removing a sprinkler toward the end of one branch line or removing the end piece of one branch line
Substantiation: The additional wording clarifies that this requirement is for a visual examination of the condition of the system piping and that it may be desired to open more than two places in the system. Breaking the two places to be examined into separate sections is appropriate for clarity and to meet the NFPA manual of style. Adding the option of removing a piece of branch line instead of a sprinkler allows for a practice that is currently being used, and allows this inspection to be performed with having to replace the sprinkler being removed. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The concept of internal inspections was deleted in Proposal 25-281 (Log #330). The requirement to open up a piping system every 5 years is not warranted and has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation to do.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:

RAY, R.: This proposal should have been accepted. The committee statement relying on these inspections being deleted by incorrectly accepting a previous proposal 25-281 (Log #330) is invalid; the submitter is correct in allowing an alternative means of performing the inspection.

25-285 Log #260 **Final Action: Reject**
(14.2.1)

Submitter: Don Moeller/Chair/TC on Cultural Resources, The Fire Consultants, Inc.
Recommendation: Revise 14.2.1 as follows:

14.2.1 Except as discussed in 14.2.1.1 and 14.2.1.4, ~~an~~ a thorough inspection of piping and branch line conditions shall be conducted every 5 years by opening a flushing connection at the end of one main, by examining a branch line interior along its entire length, and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.

Substantiation: This proposal is being submitted by me as chair of the Technical Committee on Cultural Resources on behalf of the committee at its direction via a vote at its November 2011 meeting. The same proposal was balloted and submitted in the committee's name during the last revision cycle, but could not be balloted for this cycle due to timing restrictions.

The Technical Committee on Cultural Resources is concerned the 5-year obstruction inspection is not thorough enough to discover corrosion that can obstruct sprinkler piping, reduce piping wall thickness, or create other potential leakage within the system. The examination of the branch line interior can be accomplished by various means, including noninvasive, ultrasonic means.
Committee Meeting Action: Reject
Committee Statement: Thorough is not an enforceable term. The document is a minimum standard and the inspector/owner are permitted to conduct the test to any length of pipe desired. This section was deleted in proposal 25-281 (Log #330).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-286 Log #257 **Final Action: Reject**
(14.2.1, 14.2.1.4, 14.2.2, and A.14.2.1)

Submitter: Joshua Elvove, U.S. General Services Administration
Recommendation: Revise 14.2.1 as follows:
14.2.1* Except as discussed in 14.2.1.1 and 14.2.1.4, an inspection of piping and branch line conditions shall be conducted on dry pipe and pre-action systems every 5 years by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.
Add new annex A.14.2.1 as follows:
A.14.2.1 Internal inspections are designed to look for signs of corrosion, including microbiologically influenced corrosion. See Annex D2.6. Systems containing air are prone to corrosion more quickly than systems filled with water. Therefore, these systems need to be inspected at regular intervals. Wet systems are also subject to corrosion, but should only be inspected internally if evidence of corrosion is noted via other inspection means. Subjecting wet systems to regularly internal inspections where no evidence is noted could actually increase the corrosion rate by introducing air each time the system is drained and refilling.
Delete 14.2.1.4 and Section 14.2.2 in its entirety, including its subsections and annex.
Substantiation: This proposal builds on the technical committee's nearly successful effort during ROC to forge a compromise on the frequency and applicability of internal inspections of pipe, and only require a periodic internal inspection for those systems where corrosion is highly likely, such as pre-action and dry pipe systems that contain air/water interfaces. Section 14.2 addresses internal inspections of piping and the purpose of this section should be to inspect those systems where the presence of corrosion, including microbiologically influenced corrosion is likely. That's why paragraph 14.2.1.4 exempts non-metallic pipe from this requirement. Section 14.3 is geared for investigating for obstructions which applies to all systems and all piping.
The annex note has been provided to explain this rationale and to present the option for conducting internal inspections on wet systems where evidence of corrosion has been noted through other inspection means. Frequent (re) introduction of air after removal of a sprinkler can actually increase the risk of corrosion; hence, such inspections should be evidence based, and not needlessly applied to every single wet pipe system. Pin hole leaks, if noted on wet pipe systems, would still require an obstruction investigation be conducted, which is more extensive than internal inspections of pipe.
Paragraph 2.1.4 is proposed for deletion since dry pipe and pre-action systems don't use non-metallic pipe. Section 14.2.2 is no longer needed since there should be no permission to extend an internal inspection beyond 5 years, when evidence of corrosion is noted in any part of a system.
Note: this proposal maintains the existing 5 year inspection interval even though it was never substantiated when this requirement was first introduced into NFPA 25 back in 2002 (it was said that the 5 year interval was chosen simply to match an existing 5 year requirement for inspecting the interior of check valves). Hence, if a more frequent interval is deemed necessary for inspecting dry and pre-action type sprinklers (i.e., 3 years), I am not adverse to reducing the inspection frequency accordingly.
Committee Meeting Action: Reject
Committee Statement: This concept was deleted in proposal 25-281 (Log #330) therefore the acceptance of this proposal would cause a conflict. The requirement to open up a piping system every 5 years is not warranted and has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation to do.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-287 Log #235 **Final Action: Reject**
(14.2.1.2)

Submitter: Michael Cabral, Cabral Consulting Services
Recommendation: Add new text to read as follows:
14.2.1.2 If a corrosion monitoring station is present inspection of the conditions present in the corrosion monitoring station shall meet the intent of 14.2.1.
Renumber remainder of Section 14.2.
Substantiation: A corrosion monitoring station is intended to represent the conditions inside the sprinkler system.
Committee Meeting Action: Reject
Committee Statement: This equipment does not accurately simulate the conditions within the system.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-288 Log #236 **Final Action: Reject**
(14.2.1.2)

Submitter: Michael Cabral, Cabral Consulting Services
Recommendation: Revise text to read as follows:
14.2.1.2 Tubercules or slime if found, shall be tested for ~~indications~~ presence of microbiologically influenced corrosion (MIC) causing bacteria.
Substantiation: Testing of slime Tubercules or sludge needs to find specific bacteria known to cause a reduction in the wall thickness of pipe and/or a expected continued build-up of sludge tubercules or slime.
Committee Meeting Action: Reject
Committee Statement: Bacteria present through living environments. The intent is to find MIC not simply bacteria.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-289 Log #142 **Final Action: Reject**
(14.2.1.5)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise 14.2.1.5 as shown.
14.2.1.5 In dry pipe systems and pre-action systems, the sprinkler or branch line piece removed for inspection shall be from the most remote branch line from the source of water that is not equipped with the inspector's test valve.
Substantiation: This change matches the change proposed to 14.2.1. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The concept of internal inspections was deleted in Proposal 25-281 (Log #330) therefore the acceptance of this proposal would cause a conflict. The requirement to open up a piping system every 5 years is not warranted and has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation to do.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been accepted. The committee statement relying on these inspections being deleted by incorrectly accepting a previous proposal 25-281 (Log #330) is invalid; the submitter is correct in defining the location of the branch line that should be inspected - the branch line equipped with the inspector's test connection is periodically flushed clean by other inspection and testing activities.

25-290 Log #173 **Final Action: Reject**
(14.2.1.6 (New))

Submitter: Frank Monikowski, SimplexGrinnell / Rep. Tyco/SimplexGrinnell
Recommendation: Add new text to 14.2.1.6 and eliminate the old text entirely.
14.2.1.6 Where systems cross mains are not easily accessible, or cross main caps or flushing connections not easily removed, other means of inspections and locations to inspect may be employed.
Substantiation: The importance of providing internal inspections of piping is now well documented by what has been observed In sprinkler piping globally regarding obstructions, corrosion, and MIC colonies. To allow for some systems to be neglected due to convenience is not necessary since other means are available to perform these inspections without too much difficulty. An Annex A.14.2.1.6 will be added to explain possible procedures.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The annex material provides direction on this concept already. The concept of internal inspections was deleted in 25-281 (Log #330) therefore the acceptance of this proposal would cause a conflict.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-291 Log #273 **Final Action: Reject**
(14.2.1.7 (New))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Insert a new section as follows:
14.2.1.7 In lieu of removing a single sprinkler toward the end of one branch line, a fitting shall be permitted to be removed from the branch line so that the branch line can be internally inspected.
Substantiation: NFPA 13 has been clarified to state that when sprinklers are removed, they need to be replaced with new sprinklers. This has the effect of discouraging the removal of a sprinkler. Rather than removing a sprinkler for the internal inspection, an easily removable connection could be placed on the end of branch lines to facilitate the internal inspection. While this is not a common practice now, it could become so in the future and NFPA 25 should begin to allow this better method of performing the internal inspection. We consider this to be better since the opening would be a minimum of 1-inch for the inspection rather than the ½ inch opening from a typical sprinkler.
Committee Meeting Action: Reject
Committee Statement: The concept of internal inspections was deleted in 25-281 (Log #330) therefore the acceptance of this proposal would cause a conflict. The requirement to open up a piping system every 5 years is not warranted and has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation to do.
Number Eligible to Vote: 33

Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been accepted. The committee statement relying on these inspections being deleted by incorrectly accepting a previous proposal (log 330) is invalid; the submitter is correct in allowing an alternative means of performing the inspection.

25-292 Log #243 **Final Action: Accept in Principle**
(14.2.2.1)

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education
Recommendation: Strike the mandatory 5-year open pipe inspection interval as shown below:
14.2.2.1 An inspection of piping and branch line conditions shall be ~~conducted every 5 years~~ by opening a flushing connection at the end of one main and by removing a sprinkler toward the end of one branch line for the purpose of inspecting for the presence of foreign organic and inorganic material.
Substantiation: The education facilities industry would like to re-join a discussion begun last cycle by the US General Services Administration, the US Department of Energy, the US Veteran's Hospital Administration and other large users of this document on the issue of the existing mandatory 5-year sprinkler piping inspection requirement that tracks in Proposal 25-185 and Comment 25-101.
We are as interested in life and property protection as any sector of the US economy but the manner and degree to which we accomplish that objective has to take into consideration the full range of risk aggregations unique to our industry. Over-spending in property protection systems is likely to result in under-spending in life safety systems, for example. All inspection, testing and maintenance requirements in this document and others can and should be informed by the condition-based, reliability centered operations and maintenance methods described in other NFPA documents; NFPA 70B, for example, which contains an Annex N. in which the following definition appears:
..."***N.1.4 Reliability-Centered Maintenance (RCM).*** *A logical, structured framework for determining the optimum mix of applicable and effective maintenance activities needed to sustain the operational reliability of systems and equipment while ensuring their safe and economical operation and support."*...
Our $200 billion (annual) industry is a significant part of the US gross domestic product and we would like to see the fire protection industry innovate upon sprinkler systems so that they perform more reliably and at much lower cost. There are a range of technologies and methods already available for detecting obstructions in wet and dry piping systems that may simply need a little tweaking, and need some upward scaling in availability by manufacturers and/or installers that would accomplish the same goal as the existing 5-year open pipe inspection requirement.
Committee Meeting Action: Accept in Principle
See committee action on proposal 25-281 (Log #330).
Committee Statement: The five year requirement has been eliminated. The requirement to open up a piping system every 5 years is not warranted and has never been justified. The modifications will require systems to be investigated for obstructions only when there is a trigger that would require an investigation such as:
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
RAY, R.: This proposal should have been rejected. Verbage regarding performing inspections looking for obstructions in piping have been in the standard since its inception in 1992 (though in chapter 2 at the time, and worded slightly differently in some editions). The basic subject at hand and the potential ramifications to the proper operation of a fire sprinkler system is has been clearly known and understood by the fire protection community for many many years. I am in possession of the March 1959 edition of "Internal Cleaning of Sprinkler Pipe" published by the National Board of Fire Underwriters (first published in 1941). The committee erred greatly in accepting removal of this required inspection at 5 year intervals. At my firm we have found numerous times that systems are loaded with debris (from whatever source); this debris has ranged from pipe coupons, sludge, scale, and work gloves to chunks of asphalt, none of which were preceded by any of the 14 "triggers" contained in Chapter 14. We are currently investigating a building that contains 6000 pendent ESFR sprinklers on 3" branchlines where we found pieces of asphalt as large as my fist and rocks in the piping.

25-293 Log #237 **Final Action: Reject**
(14.3(13))

Submitter: Michael Cabral, Cabral Consulting Services
Recommendation: Add new text to read as follows:
13 Pinhole leaks or evidence of replaced pipe
Substantiation: Inspector may not be aware of all events since last inspection. Evidence of pipe replacement such as unpainted pipe in a system that is otherwise painted should trigger an internal inspection in accordance with 14.3.2.2 even if less than 5 years since last internal inspection.
Committee Meeting Action: Reject
Committee Statement: Evidence of replaced pipe does not specifically mean there was an issue that required an obstruction investigation. Example would be pipe damaged by a fork lift.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-294 Log #CP14 **Final Action: Accept**
(14.3.1)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Replace item (6) as shown in the accepted 25- (Log #330) with the following language:
(6) The presence of sufficient foreign organic or inorganic material is found in the pipe
Substantiation: Following the technical committee's acceptance of 25-281 (Log #330) the technical committee discussed revising 14.3.1(6). This revised language is similar to the language in 14.2.1.3 of the 2011 edition, which was removed in 25-281 (Log #330). It ensures that when foreign material is found in the pipe it would trigger an obstruction investigation. Although internal inspections have been removed from Ch 14 through 25-281 (Log #330), if sufficient foreign material is found in the pipe another reason an obstruction investigation must be conducted.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-295 Log #136 **Final Action: Accept in Principle**
(14.3.1(1))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add to the list of conditions as shown and renumber the remainder of the list.
(1) The presence of sufficient foreign organic or inorganic material is found when conducting the periodic internal inspection of piping described in section 14.2.
Substantiation: Although it has been assumed that an additional obstruction investigation is needed when obstructing material is found during the internal inspection required by section 14.2, it has never been stated in the list of conditions prompting one. Although section 14.2.1.3 requires an obstruction investigation, by adding this to the list puts the requirement in both sections so there is no confusion. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-294 (Log #CP#14).
Committee Statement: This proposed language was moved into the new section as part of Proposal 25-294 (Log #CP14).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-296 Log #143 **Final Action: Accept in Principle**
(14.3.2.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise section 14.3.2.2 as shown.
14.3.2.2 Internal examination shall be performed at the following four points in the affected system or yard main piping:
(1) System valve
(2) Riser
(3) ~~C~~ Each cross main
(4) ~~B~~ Ten percent of the branch lines
Substantiation: The change in the charging sentence is needed to clarify that only the affected system or yard main piping needs to have this investigation performed and not all systems or piping in the facility or building. Making the change to require more than one crossmain and more than one branch line be examined is a best practice to make sure all parts of the system have been sufficiently examined to determine the extent of the obstructed piping, and to plan for correction action such as flushing or pipe replacement. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
14.3.2.2 Internal examination shall be performed at the following ~~four~~ points in the affected system or yard main piping:
(1) System valve
(2) Riser
(3) ~~C~~ Each cross main
(4) ~~B~~ Ten percent of the branch lines
Committee Statement: There may be more than four individual points for examination due to multiple cross mains and branch line points.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 26 Negative: 7
Explanation of Negative:
DRYSDALE, M.: The requirement to examine each cross main and 10% of the branch lines are arbitrary quantities that were not supported by any substantiation.

ELVOVE, J.: This change adds a significant cost to an obstruction investigation without any technical justification. This is supposed to be a minimum standard; if an obstruction investigation is warranted, the four existing requirements are a good start. Should further examination be warranted as a result of examining the aforementioned four points, then more locations can be examined.

FIELD, G.: I am voting negative because I believe 10% of branch lines is excessive. One branch line per cross main would be more than adequate.

LARRIMER, P.: I don't think the list of four items is necessary. If there is a trigger that identifies a need to investigate, the triggers will lead a "qualified" person to look for the obstructed material in the appropriate locations. The arbitrary "ten percent" of branch lines and "each" cross main is not justified as mandatory language. It may be more but likely less.
In addition, the new language is confusing. It appears to suggest that an internal examination be done on the branch lines of the yard mains.
If this remains, I suggest that it be changed to read. Internal examination shall be performed in the yard main piping or at the following ~~four~~ points in the affected system:

SAIDI, J.: This change increases cost significantly without adequate substantiation. Alternative approaches should be explored.

SHEPPARD, J.: Where are statistics to support proposed change?

UNDERWOOD, D.: Where are the statistics to show this code change is required. There were only 18 total votes cast on this change.

25-297 Log #289 **Final Action: Accept**
(15.4.2)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add water mist systems to the list in 15.4.2 as number 9 and then renumber fire service control valves as number 10.
Substantiation: Water mist systems are covered by NFPA 25.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-298 Log #6 **Final Action: Accept in Part**
(15.5.2)

Submitter: James Everitt, Western Regional Fire Code Development Committee
Recommendation: Revise text to read as follows:
(4) Where a ~~required~~ fire protection system is out of service for more than 4 hours in a 24-hour period, the impairment the impairment coordinator shall arrange for one of the following:
Substantiation: Once fire protection systems are installed they must be maintained to perform as designed or properly removed. Building occupants gain an expectation that these systems will work and are unaware if the systems are required or not. The impairment procedures outlined in this section should be conducted for both required and non-required systems. Four hours is more in line with requirements in NFPA 1 Fire Code.
Committee Meeting Action: Accept in Part
Accept the dropping of the word required.
Reject the change to 4 hours.
Committee Statement: Once the equipment is installed, whether or not the equipment was required or not isn't relative. 10 hours was added as that is the length of a normal working day, 4 hours would be too restrictive.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
ELVOVE, J.: Editorial. The committee meeting action is incorrect. The word "required" was dropped, not "request".

25-299 Log #290 **Final Action: Accept in Principle**
(15.5.2(3))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Revise 15.5.2(3) as follows:
(3) Recommendations have been submitted to management or the property owner or designated representative for interim fire mitigation strategies.
Substantiation: Explains what kind of recommendations are supposed to be submitted.
Committee Meeting Action: Accept
Revise 15.5.2(3) as follows:
(3) Recommendations to mitigate any increased risks have been submitted to management or the property owner or designated representative ~~for interim fire mitigation strategies.~~
Committee Statement: Revised language is consistent with the submitters intent just moved to the beginning of the requirement.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Issues in proposal already covered in preceding paragraph (2).
UNDERWOOD, D.: Covered in 15.5.2(2).
Comment on Affirmative:
ELVOVE, J.: The committee meeting action is incorrect. This proposal was accepted in principle, given the change made to the original proposal.
LARRIMER, P.: This should be recorded as ACCEPT IN PRINCIPLE. I assume that the modified language that the committee provided was accepted and not the original proposal.

25-300 Log #32 **Final Action: Accept in Principle**
(15.6.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise text to read as follows:
15.6.1 Emergency impairments shall include, but are not limited to, system leakage, interruption of water supply, frozen or ruptured piping, ~~and~~ equipment failure, or conditions found during inspection, testing or maintenance activities.
Substantiation: Most impairments are discovered while performing inspection, testing, and/or maintenance on the system, and yet this standard doesn't clearly state that this condition is considered an emergency impairment once it's discovered. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise language and move to the annex:
A.15.6 Emergency impairments include, but are not limited to, system leakage, interruption of water supply, frozen or ruptured piping, ~~and~~ equipment failure, or other impairments found during inspection, testing or maintenance activities.
15.6.1 will be deleted; renumber accordingly
Committee Statement: The newly approved definition and annex material supporting the definition cover this issue and include examples of emergency impairments.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
ELVOVE, J.: The purpose of the annex note is to give examples of what constitutes an emergency impairment. Additional language is open-ended and makes the existing text less clear.

25-301 Log #186 **Final Action: Reject**
(A.1.1.3.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add text to annex section A.1.1.1.2 as shown.
A.1.1.3.1 The requirement to evaluate the adequacy of the design of the installed system is not a part of the periodic inspection, testing, and maintenance requirements of this standard. However, an inspector may observe a condition that appears to warrant an evaluation of the system, and such observations can be reported to the owner or designated representative as a recommendation for an evaluation. ~~s~~Such evaluation is the responsibility of the property owner or designated representative as indicated in 4.1.5 and 4.1.6.
Substantiation: This additional annex text is needed to differentiate between what's required to be recorded in an inspection report as a deficiency or impairment and something that the inspector thinks should be investigated. Although the inspector is under no obligation in accordance with this standard to report observations that could trigger an evaluation, a recommendation should at least be addressed. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The inspector is not prohibited from making recommendations above and beyond what is stated in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-302 Log #187 **Final Action: Accept**
(A.4.1.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change this annex reference from A.4.1.1 to A.4.1.2.
Substantiation: The reference in the current edition is wrong. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Committee Statement: Editorially add asterisk to appropriate code section.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-303 Log #169 **Final Action: Accept**
(A.4.1.1 and A.4.1.2)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Renumber as follows:
Existing A.4.1.1 should be renumbered A.4.1.2
Existing A.4.1.2 should be renumbered A.4.1.1
Substantiation: This is editorial.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-304 Log #188 **Final Action: Accept**
(A.4.1.1.1.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change the annex reference from A.4.1.1.1.1 to A.4.1.1.1.
Substantiation: The reference to the section in the main body is wrong and should be changed as described. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-305 Log #189 **Final Action: Accept**
(A.4.1.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change the annex reference from A.4.1.2 to A.4.1.1.2.
Substantiation: The reference to the section in the main body is wrong and should be changed as described. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-306 Log #299 **Final Action: Accept**
(A.4.1.2)

Submitter: Tracey D. Bellamy, Telgian Corporation
Recommendation: Revise text to read as follows:
A.4.1.2 Any portion or all of the i~~I~~nspection, testing, and maintenance can be permitted to be contracted with an inspection, testing, and maintenance service.
Substantiation: As written the provisions of A.4.1.2 can infer that the contracting of the inspection, test and maintenance activities is an all or nothing proposition. Adding the clarifying language provides that any portion or all such activities can be contracted.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-307 Log #313 **Final Action: Accept in Principle**
(A.4.1.2)

Submitter: Shane M. Clary, Bay Alarm Company
Recommendation: Delete text to read as follows:
~~**A.4.1.2** Inspection, testing, and maintenance can be permitted to be contracted with an inspection, testing, and maintenance service.~~
Substantiation: Text in Annex does not correlate with text in Standard regarding accessibility.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-305 (Log #189).
Committee Statement: See Committee Statement on Proposal 25-305 (Log #189).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-308 Log #258 **Final Action: Reject**
(A.4.1.4)

Submitter: Joshua Elvove, U.S. General Services Administration
Recommendation: Add the following at the end of A.4.1.4:
When specifically requested by the property owner or designated representative, conditions noted that are not in compliance with the applicable installation standard should be reported to the property owner or designated representative. These conditions may be reported separately from those deficiencies typically noted during normal inspection, testing and maintenance activities.
Substantiation: Owner's have the prerogative of including a review to determine whether conditions are noted that deviate from original installation standards as part of their ITM program. The purpose of the new annex text is to make it clear that in such cases, such conditions are reported so the owner knows what remedial action needs to be taken and this report may be separate from a typically ITM report.
Committee Meeting Action: Reject
Committee Statement: The owner is not prohibited from requesting recommendations from the inspector above and beyond what is stated in the standard.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
ELVOVE, J.: Given the scope of NFPA 25 does include hazard evaluations, the proposed text is NOT in excess of the standard. Hence, there's really no reason for this fairly benign change to be rejected. The annex note simply proposes to make it clear that it's permitted for inspections to note design and installation deficiencies but if so noted, to do so separately from ITM deficiencies.
SAIDI, J.: The submitter's proposal was in line with intent of 25 and should be accepted.

25-309 Log #251 **Final Action: Reject**
(Figure A.4.3.1)

Submitter: Joshua Elvove, U.S. General Services Administration
Recommendation: Delete Figure A.4.3.1
Substantiation: The figure has nothing to do with the section it's attached to as paragraph 4.3.1 pertains to Records. But more importantly, all questions aside from question C are irrelevant from the "inspector's" perspective. This form is for an owner. As an owner, we see no value to this form. Therefore, in deference to those whom these forms are supposed to serve, it should be deleted.
Committee Meeting Action: Reject
Committee Statement: This may be part of an inspection record and may be requested of the owner by the AHJ.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
ELVOVE, J.: The first sentence in A.4.3.1 that references Figure A.4.3.1 has nothing to do with paragraph 4.3.1 in the body of the standard, as 4.3.1 pertains to ITM records while this form asks questions pertaining to the hazard that the owner is mandated to fill out. But more importantly, who's supposed to review this form and what actions are supposed to be taken as a result of a "yes" or "no" answer? If this is supposed to be a form for owners, why have most owners on the committee rejected this in the past?
LARRIMER, P.: Agree with submitter. The annex form should be deleted as there is no requirement for its use. It serves no purpose in the standard.
SAIDI, J.: Figure A.4.3.1 should be deleted. No value to the owners such as myself.

25-310 Log #194 **Final Action: Reject**
(Figure A.4.3.1 B.)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Change item B in the sample Owner's Section on Inspection Report as shown.
B. Has the occupancy and hazard of contents remained the same since system installation or since the last ~~inspection~~ system evaluation?
Substantiation: It's important to ask the proper question of the owner or the owners designated representative. A change could have been made prior to the previous inspection that was never identified or an evaluation was never performed. The question should always be asked in the context of the original installation or the latest evaluation. If the owner or designated representative is unsure, then an investigation should be performed and an evaluation may be necessary. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The language as submitted does not make the intended improvements. The technical committee is open to the intent of the submitter.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-311 Log #62 **Final Action: Reject**
(A.5.2.1.1.x (New))

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Add new text to read as follows:
A.5.2.1.1.x The inspection of sprinklers from the floor level may be aided by using a flashlight and or binoculars.
Substantiation: This guidance is already in the commentary text of the handbook as is the relative substantiation and should be moved into the appendix material. Paragraph 5.2.1.1 requires a visual signs of damage. The inspection is done from the floor level, because to reveal as it is usually impractical to get closer to the sprinklers for a more detailed inspection, and the use of ladders is of limited benefit when compared to the cost. A flashlight or binoculars can assist in the inspection of the sprinklers (or piping) in buildings with high ceilings. When other work is being done at the ceiling level using ladders or lifts, personnel could take advantage of the opportunity of being closer to the sprinklers and inspect the system.
Committee Meeting Action: Reject
Committee Statement: This practice is not always recommended since using a flashlight may provide a false indication of the status of the component (eg., glass bulb may appear loaded). Furthermore the guidance should be removed from the handbook as it does not reflect the views of the Technical Committee.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-312 Log #79 **Final Action: Accept in Principle**
(A.5.2.1.1.6)

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/ SimplexGrinnell
Recommendation: Add text to existing annex material for clarification.
Examples include some floor/ceiling or roof/ ceiling assemblies, whether the ceilings are lay-in tile or drywall, areas under theater stages, pipe chases, and other inaccessible areas~~.~~ even if access panels or hatches are provided into the areas.
Substantiation: It is often misunderstood that any entry point through an access panel or hatch will automatically make the space accessible thus eliminating it from being categorized as a concealed space. Expanding the definition will provide clarification with respect to what would be considered a concealed space.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Revise text to read as follows:
Examples include spaces above ~~suspended~~ ceilings ~~some floor/ceiling or roof/ ceiling assemblies~~, whether the ceilings are lay-in tile or gypsum board ~~drywall~~, areas under theater stages, pipe chases, and other inaccessible areas, even if access panels or hatches are provided into the areas.
Relocate examples from §5.2.1.1.6 to this annex section.
Committee Statement: Language was modified for clarity.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-313 Log #63 **Final Action: Reject**
(A.5.2.2.x (New))

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Add new text to read as follows:
A.5.2.2.x The inspection of pipe and fittings from the floor level may be aided by using a flashlight and or binoculars.
Substantiation: This guidance is already in the commentary text of the handbook as is the relative substantiation and should be moved into the appendix material. See proposed Paragraph 5.2.1.1.X.
Committee Meeting Action: Reject
Committee Statement: This practice is not always recommended since using a flashlight may provide a false indication of the status of the component (eg., glass bulb may appear loaded). Furthermore the guidance should be removed from the handbook as it does not reflect the views of the Technical Committee.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-314 Log #64 **Final Action: Reject**
(A.5.2.3.x (New))

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Add new text to read as follows:
A.5.2.3.X The inspection of hangers and seismic braces from the floor level may be aided by using a flashlight and or binoculars.
Substantiation: This guidance is already in the commentary text of the handbook as is the relative substantiation and should be moved into the appendix material. See proposed Paragraph 5.2.1.1.X.
Committee Meeting Action: Reject
Committee Statement: This practice is not always recommended since using a flashlight may provide a false indication of the status of the component (eg., glass bulb may appear loaded). Furthermore the guidance should be removed from the handbook as it does not reflect the views of the Technical Committee.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-315 Log #65 **Final Action: Reject**
(A.5.2.4.1)

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Revise text to read as follows:
A.5.2.4.1 Due to the ~~high~~ probability of a buildup of excess pressure, ~~gridded~~ wet pipe systems ~~should~~ shall be provided with a relief valve not less than ~~1/4 in. (6.3 mm)~~ 1/2 in. (12 mm) in size in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems.*
Substantiation: This change in relief valve size reflects the recent change in NFPA 13 2011 requiring all wet systems to have a minimum 1/2 in. relief valve.
Committee Meeting Action: Reject
Committee Statement: Annex material cannot use the word, “shall”. TG does not believe retrofitting existing wet pipe systems is needed unless excess pressures are a problem.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-316 Log #106 **Final Action: Reject**
(A.5.2.6)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Revise A.5.2.6 as follows:
A.5.2.6 The hydraulic design information sign should be secured to the riser with durable wire, chain, or equivalent. When the sign needs to be replaced or added, the owner is to supply the information for the sign based on the records from the original installation, or from the most recent system evaluation.
Substantiation: There is always a question about the need for a hydraulic design information sign when none is present on the system riser. The proposed changes make it clear that if a sign isn’t present, one needs to be provided, either to replace the one that’s missing, or to retrofit a sign if the system is a pipe schedule. When a sign needs to be replaced or added, the owner is to supply the information for the sign based on the records from the original installation, or from the most recent system evaluation. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: Proposal suggests requirements which are both obvious and already in place.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-317 Log #123 **Final Action: Reject**
(A.5.3.1.2)

Submitter: Roland J. Huggins, American Fire Sprinkler Association, Inc.
Recommendation: Delete the following text:
Within a building or portion thereof exposed to the same air quality ~~an environment~~, similar sidewall, upright, and pendent sprinklers produced by the same manufacturer could be considered part of the same sample, but additional sprinklers would be included within the sample if produced by a different manufacturer.
Substantiation: This is mainly meant to clarify the intent for “environment” but it also identifies the extent of the building that a single sample can cover.
Committee Meeting Action: Reject
Committee Statement: The term “environment” is intended to address more than just air quality.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-318 Log #66 **Final Action: Reject**
(A.5.3.2.2 (New))

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Add new text to read as follows:
A.5.3.2.2 The testing of a pressure gauge shall be conducted in comparison to a calibrated gauge over its full range, with readings taken going both up and down the range at not less than three points on the gauge and shall be accurate over the full range to plus or minus 3 percent of the maximum gauge pressure. The calibrated gauge used for this test shall be at least three times more accurate than the gauge being tested.
Substantiation: This appendix verbiage is intended to provide guidance as to how the test over the range is to be conducted.
Committee Meeting Action: Reject
Committee Statement: This cannot be performed as a field test function and is not required to ensure reliability of the installed gauges.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-319 Log #77 **Final Action: Accept in Principle**
(A.5.5.2 (New))

Submitter: John T. Johnson, Tyco Fire Protection Products
Recommendation: Add Annex material as follows:
A.5.5.2 The waterflow test may not provide an assurance of proper flow or pressure, but a means to verify that the operated valve has been returned to a full open position.
Substantiation: Upstream valves may not be main drains, so the term waterflow test would be inclusive to all drain tests, main or sectional. Many systems with floor or zone control valves are not provided with pressure gauges to verify pressure readings while conducting waterflow tests. The inspector is unable to measure or record pressure readings from current waterflow tests, or compare flows to previous tests. The inspector can only estimate the flow provided is coming from a fully open or partially open valve.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25-244 (Log #CP12).
Committee Statement: See Committee Statement on Proposal 25-244 (Log #CP12).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-320 Log #67 **Final Action: Reject**
(A.6.3.4.2 (New))

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Add new text to read as follows:
A.6.3.4.2 The testing of a pressure gauge shall be conducted in comparison to a calibrated gauge over its full range, with readings taken going both up and down the range at not less than three points on the gauge and shall be accurate over the full range to plus or minus 3 percent of the maximum gauge pressure. The calibrated gauge used for this test shall be at least three more accurate than the gauge being tested.
Substantiation: This appendix verbiage is intended to provide guidance as to how the test over the range is to be conducted.
Committee Meeting Action: Reject
Committee Statement: This cannot be performed as a field test function and is not required to ensure reliability of the installed gauges.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-321 Log #78 **Final Action: Accept in Principle**
(A.6.5.3 (New))

Submitter: John T. Johnson, Tyco Fire Protection Products / Rep. Tyco/SimplexGrinnell
Recommendation: Add Annex material as follows:
A.6.5.3 The waterflow test may not provide an assurance of proper flow or pressure, but a means to verify that the operated valve has been returned to a full open position.
Substantiation: Upstream valves may not be main drains, so the term waterflow test would be inclusive to all drain tests, main or sectional. Many systems with floor or zone control valves are not provided with pressure gauges to verify pressure readings while conducting waterflow tests. The inspector is unable to measure or record pressure readings from current waterflow tests, or compare flows to previous tests. The inspector can only estimate the flow provided is coming from a fully open or partially open valve.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
See Committee Action on Proposal 25- 244(Log #CP12).
Committee Statement: See Committee Statement on Proposal 25-244 (Log #CP12).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-322 Log #CP4 **Final Action: Accept**
(A.8.3.3.1)

Submitter: Technical Committee on Inspection, Testing, and Maintenance of Water-Based Systems,
Recommendation: Delete the first sentence of the annex of A.8.3.3.1 as it is no longer needed based on the action taken in Proposal 25- (Log #45).
Substantiation: The clarification of 150 percent instead of peak gives the user a defined meaning to the word (peak). This change to the body of the standard makes this Annex sentence unnecessary.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-323 Log #53 **Final Action: Reject**
(A.8.3.3.5)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Revise text to read as follows:
A.8.3.3.5 It is not the intent to verify that all the alarm conditions required NFPA 20 (e.g., low oil pressure, high coolant temperature, failure of engine to start, engine overspeed, loss of phase, phase reversal) transmit individually to a remote location, as long as these alarms can be individually verified or simulated at the pump controller.
Substantiation: Modifying this section would provide viable methods (simulation) to comply with the requirement of Joint Commission. Factor such as phase reversal or loss cannot be achieved in a safe (realistic) manner. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: Separate alarms are required for loss of phase and phase reversal.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
ELVOVE, J.: NFPA 20 doesn't say that loss of phase and phase reversal need to be transmitted as individual signals to a remote location in all cases; it only requires that these signals be individually distinguished remotely when the controller isn't constantly attended.
LARRIMER, P.: The proposal should be accepted. The alarms for loss of phase and phase reversal, while required, are permitted to be sent remotely as a common alarm and are not required to be sent remotely as individually annunciated points when they are individually annunciated at the controller. This proposal just adds a loss of phase and phase reversal to the list that is already provided.

25-324 Log #133 **Final Action: Reject**
(A.8.3.5.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Delete the following text as shown and add the rest of this annex section to A.8.3:
~~**A.8.3.5.1** Where the information is available, the test plot should be compared with the original acceptance test plot. It should be recognized that the acceptance test plot could exceed the minimum acceptable pump requirements as indicated by the rated characteristics for the pump. While a reduction in output is a matter of concern, this condition should be evaluated in light of meeting the rated characteristics for the pump. *[See Figure A.8.3.5.3(1)(a).]*~~
Substantiation: There's no need to compare pump test results with the original acceptance test curve as long as the name plate data is available. The name plate data will always represent a lower curve that the original acceptance test one, and the only time the original acceptance test curve should be used is when the name plate data is missing. The rest of this annex section describes the quality and accuracy of the test equipment and belongs as explanatory material to 8.3 not 8.3.5.1. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: Comparison to original pump information are needed for proper evaluation.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-325 Log #54 **Final Action: Reject**
(Figure A.8.3.5.3(1)(a) and (b))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Take the following action in Figures A.8.3.5.3(1)(a) and (b):
Delete Figure A.8.3.3.5.3(1)(a) in its entirety.
Remove the "(b)" from Figure A.8.3.5.3(1).
Substantiation: Removal of figure (a) removes the adjusted curve as proposed in 8.3.5.2.1 using theoretical factors. The "(b)" is no longer necessary since only one figure will remain in the annex. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: See Committee Action on Proposal 25-188 (Log #CP5). The language accepted in this log requires Mathematical adjustments to be made for correction of recorded test data to the original pump rated speed and velocity head.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-326 Log #55 **Final Action: Accept**
(A.8.4.2)

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Delete text to read as follows:
~~A.8.4.2 See 8.3.3.4~~
Substantiation: Referenced code has no direct relationship to 8.4.2 Reports. 8.3.3.4 only indicates transfer switch data not all recordable data necessary to complete an annual flow test. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-327 Log #52 **Final Action: Reject**
(A.8.8.4.2.1 (New))

Submitter: Robert S. Bartosh, SimplexGrinnell
Recommendation: Add new text to read as follows:
8.8.4.2.1 A copy of test results shall be posted on the pump controller.
Substantiation: Addition would provide a copy of previous tests at a specified location for comparison purposes. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: As long as owner has copy in file, this is not necessary.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
ELVOVE, J.: I believe this proposal suggested adding language to paragraph 8.4.2, even though it incorrectly references 8.8.4.2.1. Therefore, the proposal should be sequenced after 25-198, and not in the annex.

25-328 Log #130 **Final Action: Accept**
(A.9.2.6.1.2 (New))

Submitter: Raymond Brown, SimplexGrinnell / Rep. Tyco/SimplexGrinnell
Recommendation: Add new annex note to 9.2.6.1.2 as follows:
A.9.2.6.1.2 If written verification of interior corrosion protection for a tank per NFPA 22 Standard for Water Tanks for Private Fire Protection cannot be provided by the building owner, the interior of the tank should be inspected every 3 years.
Substantiation: Without written verification of corrosion protection the inspector would not know if the tank required a 5 year inspection or a 3 year inspection. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-329 Log #126 **Final Action: Accept in Principle**
(A.9.3.6 (New))

Submitter: Mark T. Conroy, Brooks Equipment Company
Recommendation: Add the following as a new A.9.3.6:
A.9.3.6 See A.5.3.2
Substantiation: Section 9.3.6 is identical to 5.3.2. Referencing A.5.3.2 in paragraph A.9.3.6 is therefore appropriate.
Committee Meeting Action: Accept in Principle
Add the following as a new A.9.3.6:
A.9.3.6 See A.5.3.2.
Add an asterisk to 9.3.6.
Committee Statement: Editorial reminder.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-330 Log #27 **Final Action: Reject**
(A.13.2.5)

Submitter: Frank Monikowski, SimplexGrinnell
Recommendation: Add new text to the end of the 3rd subparagraph of A.13.2.5 that starts with "A large drop" as follows:
In addition to comparing the residual pressure to previous test results [which may not be available], the test results should be compared to the hydraulic placard residual pressure [when present] to further help determine if water supply degradation may have occurred. A residual pressure reading from the main drain tests that is equal to or lower than the designed residual pressure requires further investigation the same as a 10% degradation. This will also helpful when a 2% degradation may occur over an extended period of time that would go unnoticed and not be reported.
Substantiation: 1.25 in. and 2 in. drain tests cannot possibly flow enough water to meet the sprinkler system demand [3D exempt and not required]. If residual pressure readings from the drain tests are lower than that indicated on the placard, a serious problem most likely exists as t what water supply either being inadequate or a blockage or shut valve of some kind may be present. A study published in Q4 2010 edition of SFPE magazine indicated ineffective performance of sprinkler systems 9% of the time is attributed to not enough water being discharged.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The Manual of Style does not permit mandatory criteria in the annex. Also no data was submitted supporting the recommended trigger point. It should be noted that the main drain will flow system demand for many systems.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-331 Log #190 **Final Action: Accept**
(A.13.2.5(6))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Delete A.13.2.5(6) as shown.
~~(6) Record the time taken for the supply water pressure to return to the original static (nonflowing) pressure.~~
Substantiation: There is no requirement in the installation standards to record this time so there's no baseline for comparison. Because it's in the annex of NFPA 25 some AHJs have reviewed inspection reports to make sure this time has been recorded. Those that have attempted to measure this time indicate that it's practically instantaneous. If there's a blockage in the supply piping that would affect the static pressure, it will certainly be discovered when performing the main drain test. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-332 Log #68 **Final Action: Reject**
(A.13.2.7.3 (New))

Submitter: Gordon Farrell, Tyco Fire Protection Products
Recommendation: Add new text to read as follows:
A.13.2.7.3 The testing of a pressure gauge shall be conducted in comparison to a calibrated gauge over its full range, with readings taken going both up and down the range at not less than three points on the gauge and shall be accurate over the full range to plus or minus 3 percent of the maximum gauge pressure. The calibrated gauge used for this test shall be at least three more accurate than the gauge being tested.
Substantiation: This appendix verbiage is intended to provide guidance as to how the test over the range is to be conducted.
Committee Meeting Action: Reject
Committee Statement: Base criteria is to have the gauge re-calibrated and not tested in the field.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-333 Log #191 **Final Action: Accept in Principle**
(A.13.3.3.2)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add new text in A.13.3.3.2 as shown, before the existing text. All other existing text to remain.
A.13.3.3.2 A proper wrench needs to be used for this test. Using an improper wrench such as a pipe wrench has resulted in damage to the operating nut. The use of break over bars and extensions on the wrench can damage the valve and/or the post. If the valve cannot be closed and reopened using the proper wrench with reasonable force, then some maintenance and/or repairs are necessary so the valve can be operated when needed in a fire event.
Substantiation: This change clarifies that a proper wrench needs to be used for this test. Using an improper wrench such as a pipe wrench has resulted in damage to the operating nut. The use of break over bars and extensions on the wrench can damage the valve and/or the post. If the valve cannot be closed and reopened using the proper wrench with reasonable force, then some maintenance and/or repairs are necessary so the valve can be operated when needed in a fire event. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
The terms "has" and 'can" should be changed to "may".
Committee Statement: Editorial changes.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-334 Log #124 **Final Action: Accept**
(A.13.6.2.1)

Submitter: Roland J. Huggins, American Fire Sprinkler Association, Inc.
Recommendation: Delete the following text:
~~The tests required by 13.6.2 typically test only for operation of the device under backflow conditions. Forward-flow test conditions are required by other portions of this standard.~~
Substantiation: This statement is incorrect since NFPA 25 tests are only concerned with forward flow and not backflow.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-335 Log #193 **Final Action: Reject**
(A.13.6.2.1)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add, revise, and delete explanatory text in A.13.6.2.1 as shown.
A.13.6.2.1 The full flow test of the backflow prevention valve can be performed with a test header or other connections downstream of the valve. A bypass around the check valve in the fire department connection line with a control valve in the normally closed position can be an acceptable arrangement. Whatever means are used for the forward flow test, the flow through all used outlets should be measured to determine if system demand flow was realized or not. When flow to a visible drain cannot be accomplished, closed loop flow can be acceptable if a flowmeter or ~~sight glass~~ is incorporated into the system to ~~ensure~~ measure flow. ~~The tests required by 13.6.2 typically test only for operation of the device under backflow conditions. Forward-flow test conditions are required by other portions of this standard.~~
Substantiation: These changes are necessary to explain how the forward flow test can be accomplished. Measuring the flow even if it's through multiple outlets is necessary. A sight glass doesn't meet the needs of this test and adds nothing to it. The last two sentences were left over from when the backflow test was required by this standard and should have been deleted in previous editions. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.

Committee Meeting Action: Reject
Committee Statement: Measuring the flow is not required and conflicts with the installation requirements of NFPA 13 (A.8.17.4.6.1). This is simply meant to exercise the BFP. See Committee Action on Proposal 25-271 (Log #CP15).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-336 Log #286 **Final Action: Reject**
(A.13.6.2.1)

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Replace the second paragraph of A.13.6.2.1 with the following:
~~The tests required by 13.6.2 typically test only for operation of the device under backflow conditions. Forward-flow test conditions are required by other portions of this standard.~~
The forward flow test of a backflow preventer only evaluates the flow through the device, not the pressure. However, the pressure at the system flow rate could provide important information about the condition of the internal check valves, similar to the main drain test.
Substantiation: The current paragraph is not longer correct. The backflow test is gone from NFPA 25 and the forward flow test is in this section, not others. The replacement paragraph reinforces the requirement and makes some suggestions about additional data that could be collected, but is not required.
Committee Meeting Action: Reject
Committee Statement: Measuring the flow is not required and conflicts with the installation requirements of NFPA 13 (A.8.17.4.6.1). This is simply meant to exercise the BFP. See committee action on 25-271 (Log #CP15).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-337 Log #170 **Final Action: Accept in Principle**
(A.13.7.2 (New))

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Add new text to read as follows:
A.13.7.2 It is not the intent of this section for all fire department connection piping to be inspected for obstructions but rather the interior of the connection itself.
Substantiation: There is some confusion in the industry as to the extent of this inspection. This annex material should clear this up.
Committee Meeting Action: Accept in Principle
Accept language with the following modifications:
1) Relocate language to A.13.7.1 (9) and add asterisk in body.
2) Change the word "rather" to "only".
Committee Statement: 13.7.2 was deleted as part of 25-278 (Log #8) so this language needs to be moved to the preceding section.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-338 Log #172 **Final Action: Reject**
(A.14.2.1.4)

Submitter: Frank Monikowski, SimplexGrinnell / Rep. Tyco/SimplexGrinnell
Recommendation: Add the following new section to the Annex.
A.14.2.1.4 Should any of the items found in 14.3.1 be observed where non metallic piping is present, an inspection and investigation as outlined in both 14.2.1 and in 14.3.2 should be performed.
Substantiation: Non metallic piping can be subject to obstructions the same as metallic pipe for many of the line items listed In 14.3.1. For this, reason, it needs to be clarified further inspections and investigations need to take place in all piping when warranted.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The internal inspection requirement was removed as part of Proposal 25-281 (Log #330).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Negative: 1
Explanation of Negative:
LARRIMER, P.: The action on this proposal should have been accept in principle. The change made to chapter 14 will require plastic pipe to be investigated when a trigger in 14.3.1 indicates that there may be obstructions. See item (e) of the substantiation to 25-281.

25-339 Log #174 **Final Action: Reject**
(A.14.2.1.6)

Submitter: Frank Monikowski, SimplexGrinnell / Rep. Tyco/SimplexGrinnell
Recommendation: Delete existing A.14.2.1.6 in its entirety and replace with the following new text:
A.14.2.1.6 Accessing ends of cross mains and removing flushing connections can sometimes be difficult. The important thing is that we observe at least the interior of cross mains at some point in the system. This can be done by providing access panels in Gypsum Board ceilings, or by using a snake camera from a sprinkler riser or branch line to view the inside of a cross main. Also mechanical tees can be cut into the piping when caps are too difficult to remove. Alternatively 14.2.1.1 may also be followed.
Substantiation: Providing options to inspect the internal conditions of sprinkler cross mains is imperative. To allow an excuse as to why it might not be done is irrelevant and not good fire protection maintenance practices especially with today's modem technology available.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Reject
Committee Statement: The internal inspection requirement was removed as part of 25-281 (Log #330).
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-340 Log #144 **Final Action: Accept in Principle**
(A.14.3.1(4))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Move the annex text of A.14.3.1 (4) to the main body as shown and renumber the rest of the list.
~~A.~~14.3.1~~(4)~~ (5) If unknown materials are heard in the system piping during draining, refilling, or otherwise flowing water through the system.
Substantiation: This annex text needs to be in the body of the standard. Many times rocks and other obstructing material can be heard entering a system when refilling after performing routine ITM activities or after system modifications are made. An obstruction investigation should not be recommended or suggested in the annex, but should be required by the standard. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Accept the proposal but delete the word "if" and renumber the list.
Committee Statement: This editorial change is consistent with the structure of the list.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 31 Negative: 2
Explanation of Negative:
SHEPPARD, J.: Why reverse committee action? Existing 14.3.1(4) is adequate.
UNDERWOOD, D.: Why are reversing ourselves from the last printing. What is written is adequate.

25-341 Log #97 **Final Action: Accept in Principle**
(A.15.6.1 (New))

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Add new Annex wording with attachment as follows:
A.15.6.1 When one or more impairments are discovered during inspection, testing, and maintenance activities the owner or owner's authorized representative should be notified in writing. See Figure A.15.6.1 for an example of written notification.
Extract exhibit 15.2 from the 2008 NFPA 25 handbook and label it Figure A.15.6.1. Make the following changes to the extracted exhibit:
1. Change reference in the second paragraph from "Chapter 11" to "Chapter 15".
2. Delete "dry pipe valve is obsolete and was not tested" from the checklist.
3. Delete "jockey pump is out of service" from the checklist.
4. Add any other findings designated as an impairment in annex E to the checklist.
Substantiation: Most impairments are discovered while performing inspection, testing, and/or maintenance on the system, and the building owner or representative should be notified so proper procedures can be implemented per Chapter 15. The proposed form has been in the NFPA 25 handbook since 2002 and is an example of what the written notification might look like. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle
Add new Annex wording with attachment as follows(this is attached to the 15.6.2 from the 2011 edition which will be renumbered as 15.6.1 was deleted):
A.15.6.2 When one or more impairments are discovered during inspection, testing, and maintenance activities the owner or owner's authorized representative should be notified in writing. See Figure A.15.6.2 for an example of written notification.
Extract exhibit 15.2 from the 2008 NFPA 25 handbook and label it Figure A.15.6.1. Make the following changes to the extracted exhibit:
1. Change reference in the second paragraph from "Chapter 11" to "Chapter 15".
2. Delete "dry pipe valve is obsolete and was not tested" from the checklist.
3. Delete "jockey pump is out of service" from the checklist.
DO NOT Add the proposed item (4) Add any other findings designated as an impairment in annex E to the checklist.
Committee Statement: Item 4 is not being accepted as it deals with annex language which may be viewed differently on a jurisdiction by jurisdiction. Annex E will undergo further refinement prior to the ROC meeting, therefore pulling all of the items from this table into the checklist would be premature.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

IMPAIRMENT NOTICE

DURING A RECENT INSPECTION OF YOUR FIRE PROTECTION SYSTEM(S), AN ***EMERGENCY IMPAIRMENT*** WAS DISCOVERED AND INDICATED ON THE INSPECTION REPORT. AS DEFINED BY NFPA 25, AN ***EMERGENCY IMPAIRMENT*** IS "A CONDITION WHERE A WATER-BASED FIRE PROTECTION SYSTEM OR PORTION THEREOF IS OUT OF ORDER DUE TO AN UNEXPECTED OCCURRENCE, SUCH AS A RUPTURED PIPE, OPERATED SPRINKLER, OR AN INTERRUPTION OF WATER SUPPLY TO THE SYSTEM." NFPA 25 FURTHER STATES, "EMERGENCY IMPAIRMENTS INCLUDE BUT ARE NOT LIMITED TO SYSTEM LEAKAGE, INTERRUPTION OF WATER SUPPLY, FROZEN OR RUPTURED PIPING, AND EQUIPMENT FAILURE."

WE RECOMMEND THAT IMMEDIATE STEPS BE TAKEN, AS DESCRIBED IN THE ATTACHED COPY OF CHAPTER 15 OF NFPA 25, TO CORRECT THE FOLLOWING IMPAIRMENT(S) TO YOUR FIRE PROTECTION SYSTEM(S):

[ ] CONTROL VALVE SHUT. SYSTEM OUT OF SERVICE.
[ ] LOW WATER PRESSURE DURING FLOW TEST. POSSIBLE OBSTRUCTION IN WATER SUPPLY OR PARTIALLY SHUT VALVE.
[ ] PIPE(S) FROZEN.
[ ] PIPE(S) LEAKING.
[ ] PIPE(S) ARE OBSTRUCTED.
[ ] SYSTEM PIPING OR PORTIONS OF SYSTEM PIPING ARE DISCONNECTED.
[ ] FIRE DEPT. CONNECTION MISSING OR DAMAGED OR OBSTRUCTED.
[ ] DRY PIPE VALVE CANNOT BE RESET.
[ ] DRY PIPE SYSTEM QUICK OPENING DEVICE IS OUT OF SERVICE.
[ ] SPRINKLERS ARE PAINTED, CORRODED, DAMAGED, OR LOADED.
[ ] FIRE PUMP IS OUT OF SERVICE.
[ ] DETECTION/ACTUATION SYSTEM IS OUT OF SERVICE.
[ ] OTHER: _____
_____

Figure A.15.6.1

Comment on Affirmative:
ELVOVE, J.: Include the exhibit proposed for A.15.6.1 in the ROP (and ballot) so the pubic (and committee) knows what this change involves

25-342 Log #275 **Final Action: Accept in Principle**
(A.15.7 (New))

Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.
Recommendation: Add a new annex note as follows:
A.15.7 Restoring Systems to Service After Disuse
Occasionally, fire protection systems in idle or vacant buildings are shut off and drained. When the equipment is eventually restored to service after a long period of not being maintained, it is recommended that a responsible and knowledgeable contractor perform the work. The following procedure is recommended:
(1) All piping should be traced from the extremities of the system to the main connections with a careful check for blank gaskets in flanges, closed valves, corroded or damaged sprinklers, nozzles or piping, insecure or missing hangers and insufficient support. Proper repairs or adjustments should be made and needed extensions or alterations for the equipment should be completed.
(2) An air test at low pressure (40 psi) should be conducted prior to allowing water to fill the system. When the piping has been proven tight by passing the air test, water can be introduced slowly into the system with proper precautions against damage by escape of water from previously undiscovered defects. When the system has been filled under normal service pressure, drain valve tests should be made to detect any closed valve that possible could have been overlooked. All available pipes should be flushed and an obstruction investigation completed to make sure that the system is clear of debris.
(3) Where the system was known to have been damaged by freezing or where other extensive damage may have occurred, a full hydrostatic test can be performed in accordance with NFPA 13 to determine whether the system integrity has been maintained.
(4) Dry-pipe valves, quick opening devices, alarm valves and all alarm connections should be examined, put in proper condition and tested.
(5) Fire pumps, pressure and gravity tanks, reservoirs and other water supply equipment should receive proper attention before being placed in service. Each supply should be tested separately; and then together if they are designed to work together.
(6) All control valves should be operated from the closed to fully open position and should be left sealed, locked or equipped with a tamper switch.
Substantiation: Guidance on returning systems to service that have long been out of service is helpful. This material used to be in NFPA 13A and was lost when information was converted into NFPA 25.
Committee Meeting Action: Accept in Principle
Accept with the following modifications+
1) ~~The following procedure is recommended~~**The following is an example of a procedure.**
2) ~~2) responsible and knowledgeable contractor~~ qualified person
3) A.15.7 Restoring Systems to Service After Non~~Dis~~use
Committee Statement: The revised language makes it clear that there is more than 1 procedure. The commonly used term is "Non-use", not "disuse". The standard already has a definition for a qualified person, therefore knowledgeable and responsible wouldn't provide any further direction for the type of person doing this work.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33
Comment on Affirmative:
ELVOVE, J.: The first paragraph in A.15.7 recommends that a knowledgeable contractor perform work when anyone who's qualified can do this. Even though this is annex material, language must be clear to permit owners the option of using in-house personnel who are appropriately qualified.
UNDERWOOD, D.: Responsible and knowledgeable contractor should be (qualified person) as shown elsewhere in the code.

25-343 Log #7 **Final Action: Accept in Principle**
(Annex D)

Submitter: James Everitt, Western Regional Fire Code Development Committee
Recommendation: Add new section D 1.1 While this chapter provides minimum requirements for the investigation and prevention of obstructions, AHJ's must also consider regional, local and project specific propensities and histories to determine reasonable testing and obstruction mitigation measures.
Substantiation: Various regions of the country may not experience certain obstruction problems. Referring to the provisions of this chapter as a minimum, may imply to some that this must be adhered to regardless of regional or local conditions. This will add to the expense of system maintenance without a commensurate in performance.
Committee Meeting Action: Accept in Principle
Change "must" to "should".
Committee Statement: Editorial /MOS change.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-344 Log #175 **Final Action: Accept**
(D.4.1)

Submitter: Frank Monikowski, SimplexGrinnell / Rep. Tyco/SimplexGrinnell
Recommendation: D.4.1 item (3) needs deleted in its entirety
~~Piping that has been galvanized internally for new dry pipe and preaction sprinkler system installations should be used. Fittings, couplings, hangars, and other appurtenances are not required to be galvanized. Copper or stainless steel piping also is permitted.~~
Substantiation: Studies by corrosion engineers have proven that Galvanized piping does not prevent corrosion. Same is true with all metallic piping.
For this reason, item 3 should be deleted.
This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept
Number Eligible to Vote: 33
Ballot Results: Affirmative: 30 Negative: 3
Explanation of Negative:
ELVOVE, J.: No substantiation was provided for removing the option of using galvanized piping.
SHEPPARD, J.: To which studies is the submitter referring?
UNDERWOOD, D.: What studies. What happened to stainless steel.

25-345 Log #171 **Final Action: Reject**
(Annex E)

Submitter: Russell B. Leavitt, Telgian Corporation
Recommendation: Delete Annex E.
Substantiation: The list is incomplete and subject to much misinterpretation. If it is to remain, it must undergo a complete rewrite.
Committee Meeting Action: Reject
Committee Statement: The table is incomplete, however the list of examples provided is of great value and shouldn't be deleted.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 29 Negative: 4
Explanation of Negative:
DRYSDALE, M.: The list is subject to much misinterpretation.
ELVOVE, J.: Remove the list since there no longer are critical or non-critical deficiencies defined in the body of the standard. Moreover, the distinction is arbitrary and could thus be misinterpreted by those trying to use the table.
SHEPPARD, J.: I believe we omitted the terms "critical" and "non critical" from the standard text.
UNDERWOOD, D.: Weren't critical and non-critical eliminated.

25-346 Log #293 **Final Action: Reject**
(Table E.1)

Submitter: George W. Stanley, Wiginton Fire Systems
Recommendation: Revise text to read as follows:
Move the entire contents of Table E.1 to a new Table A.4.1.4 and delete the entire Annex E.
Revised the last sentence of A.4.1.4 as followed: A table showing classifications of needed corrections and repairs is shown in ~~section E.1~~ Table A.4.1.4.
Substantiation: Moving Table E.1 to a new Table A.4.1.4 changes it from an example to explanatory material which will give more clarity to the inspecting contractor and direction to the owner.
Committee Meeting Action: Reject
Committee Statement: The table needs more refinement before pulling it into Annex A.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 33

25-347 Log #241 **Final Action: Accept in Principle in Part**
(E.1 and Table A.4.1.4)

Submitter: Terry L. Victor, Tyco/SimplexGrinnell
Recommendation: Move Table E.1 to annex A as new Table A.4.1.4 titled "~~Examples of~~ Classifications of Needed Corrections and Repairs".
Move E.1 to annex A and add at the end of existing A.4.1.4 text as follows:
~~E.1~~ A.4.1.4 Table ~~E.1 is an example of~~ A.4.1.4 shows classifications (e.g., impairment, critical deficiency, or noncritical deficiency) of ~~some~~ many of the needed corrections and repairs that are identified during the inspection, testing, and maintenance of ~~some~~ systems. This table is not all-inclusive but is included in this annex to provide ~~some~~ guidance in responding to needed corrections and repairs. The table does not take into account the nature of the hazard or the life safety exposure of the occupancy and should be used with good judgment.
Make changes to the new Table A.4.1.4 as follows:

Incorporate all new requirements into new Table A.4.1.4.

Table A.4.1.4 Water-Based Fire Protection System Inspection & Testing Findings

Item	Finding	Reference	Impairment	Critical Deficiency	Non-Critical Deficiency
Chapter 13 VALVES, VALVE COMPONENTS, AND TRIM - Inspection		**NFPA 25 - 2008**			
Gauges	Poor condition	13.2.7.1			X
Gauges	Not showing normal water/air pressure	13.2.7.1		X	
Control valve	Improper closed position	13.3.2.2	X		
Control valve	Improper open position, leaking	13.3.2.2		X	
Control valve	Not sealed, locked or supervised, not accessible, no appropriate wrench if required, and no identification	13.3.2.2			X
Alarm valve	External physical damage, trim valves not in appropriate open of closed position, retard chamber or alarm drain leaking	13.4.1.1		X	
Alarm valve	Alarm valve, strainers, filters and restricted orifices not internally inspected after 5 years	13.4.1.2		X	
Check valve	Check valve not internally inspected after 5 years	13.4.2.1		X	
Valve enclosure	Not maintaining minimum 40° F temp.	13.4.3.1.1 13.4.4.1.1		X	
Preaction valve and deluge valve	External physical damage, trim valves not in appropriate open or closed position, valve seat leaking	13.4.3.1.6		X	
Preaction valve and deluge valve	Electrical components not in service	13.4.3.1.6	X		
Preaction valve and deluge valve	Interior of preaction valve/or deluge valve, strainers, filters, restricted orifices, and diaphragm chambers not internally inspected after 5 years	13.4.3.1.8		X	
Dry pipe valve/Quick opening device	External physical damage, trim valves not in appropriate open of closed position, intermediate chamber leaking	13.4.4.1.4		X	
Dry pipe valve/Quick opening device	Dry pipe valve, strainers, filters and restricted orifices not internally inspected after 5 years	13.4.4.1.6		X	

Table A.4.1.4 Water-Based Fire Protection System Inspection & Testing Findings (continued)

Item	Finding	Reference	Impairment	Critical Deficiency	Non-Critical Deficiency
Sprinkler pressure reducing control valves	Not in open position, not maintaining downstream pressures in accordance with the design criteria	13.5.1.1	X		
Sprinkler pressure reducing control valves	Leaking, valve damaged, handwheel missing or broken	13.5.1.1		X	
Hose connection pressure reducing valves	Handwheel broken or missing, hose threads damaged, leaking, reducer missing	13.5.2.1		X	
Hose connection pressure reducing valves	Cap missing	13.5.2.1			X
Hose rack assembly pressure reducing valve	Handwheel broken or missing, leaking	13.5.3.1		X	
Hose valves	leaking, visible obstructions, caps, hose threads, valve handle, cap gasket, no restricting device, damaged or in poor condition	13.5.6.1		X	
Backflow prevention assemblies	Reduced pressure assemblies differential-sensing valve relief port continuously discharging	13.6.1.2		X	
Fire department connection	Not accessible, couplings & swivels damaged, do not rotate smoothly, clapper not operating properly or missing	13.7.1	X		
Fire department connection	Not visible, couplings & swivels do not rotate smoothly, plugs & caps or gaskets damaged or missing, check valve leaking, automatic drain not operating properly or missing	13.7.1		X	
Fire department connection	Missing identification sign	13.7.1			X

Table A.4.1.4 Water-Based Fire Protection System Inspection & Testing Findings (continued)

Item	Finding	Reference	Impairment	Critical Deficiency	Non-Critical Deficiency
Chapter 13 VALVES, VALVE COMPONENTS, AND TRIM - Testing		**NFPA 25 - 2008**			
Alarm devices	Water motor and gong not functioning	13.2.6.1		X	
Alarm devices	Pressure switch or vane type switch not functioning or no alarm	13.2.6.2		X	
Gauges	Not replaced or calibrated in 5 years, not accurate within 3% of scale	13.2.7.2 13.2.7.3			X
Control valve	Valve will not operate through its full range	13.3.3.1		X	
Control valve	No spring or torsion felt in rod when opening post indicator valve	13.3.3.2	X		
Supervisory switches	No signal from two revolutions of the hand wheel from normal position or when stem has moved one-fifth of the distance from normal position, signal restored in position other than normal	13.3.3.5.2			X
Preaction valve	Priming water level not correct	13.4.3.2.1		X	
Deluge valve	Annual full flow trip test revealed plugged nozzles, pressure reading at hydraulically most remote nozzle and/or at valve not comparible to original design values, manual actuation devices did not operate properly	13.4.3.2.2.3	X		
Preaction valve	Low air pressure switch did not send signal or no alarm	13.4.3.2.12			X
Preaction and deluge valve	Low temperature switch did not send signal or no alarm	13.4.3.2.13			X
Preaction valve	Automatic air maintenance device did not pass test	13.4.3.2.14			X
Dry pipe valve	Priming water level not correct	13.4.4.2.1		X	
Dry pipe valve	Annual trip test results were not comparible to previous tests	13.4.4.2.2			X
Dry pipe valve	No full flow trip test done after 3 years or test results not comparable to previous results	13.4.4.2.2.2			X
Quick opening device	Quick opening device did not pass test	13.4.4.2.4		X	

Table A.4.1.4 Water-Based Fire Protection System Inspection & Testing Findings (continued)

Item	Finding	Reference	Impairment	Critical Deficiency	Non-Critical Deficiency
Dry pipe valve	Low air pressure switch did not send signal or no alarm	13.4.4.2.6			X
Dry pipe valve	Low temperature switch did not send signal or no alarm	13.4.4.2.7			X
Dry pipe valve	Automatic air maintenance device did not pass test	13.4.4.2.8		X	
Dry pipe system	No leakage test after 3 years	13.4.4.2.9			X
Dry pipe system	Three year leakage test failed	13.4.4.2.9		X	
Sprinkler pressure reducing control valves	No full flow test done after 5 years or test results not comparable to previous results	13.5.1.2			X
Hose connection pressure reducing valves	No full flow test done after 5 years or test results not comparable to previous results	13.5.2.2			X
Hose rack assembly pressure reducing valve	No full flow test done after 5 years or test results not comparable to previous results	13.5.3.2			X
Hose valves (Class I and Class III standpipe system)	Annual test revealed valve leaking or difficult to operate	13.5.6.2.1.1		X	
Hose valves (Class II standpipe system)	Test revealed valve leaking or difficult to operate	13.5.6.2.2 13.5.6.2.2.1		X	
Hose valves (Class II standpipe system)	No test after 3 years	13.5.6.2.2 13.5.6.2.2.1			X
Backflow prevention assemblies	Did not pass forward flow test	13.6.2.1	X		
Backflow prevention assemblies	No forward flow test done after one year	13.6.2.1			X
Backflow prevention assemblies	Did not pass backflow performance test	13.6.2.1			X

Substantiation: The current table E.1 has excellent and much needed guidance for classifying impairments, critical deficiencies, and noncritical deficiencies. While there are still some gray areas which would prevent it from being in the body of the standard, it does cover most of the findings from an inspection and/or test. This proposal is being submitted by the Tyco Codes and Standards NFPA 25 Task Group.
Committee Meeting Action: Accept in Principle in Part
Accept the updated table and verbiage.
Do not move to Annex A.
Do not delete the term example
Committee Statement: The table needs more refinement before pulling it into Annex A.
Number Eligible to Vote: 33
Ballot Results: Affirmative: 32 Abstain: 1
Explanation of Abstention:
ELVOVE, J.: I am unable to vote on this issue as I cannot ascertain the changes that were made to Annex E, since they are not specifically indicated in the ballot package. Morever, the table makes reference to the 2008 edition of NFPA 25.

25-348 Log #246 **Final Action: Reject**
(Annex X (New))

Submitter: Michael A. Anthony, University of Michigan / Rep. APPA.ORG - Leadership in Education
Recommendation: Add New Annex X (re-purposed from Annex N: Reliability-Centered Maintenance from NFPA 70B) as shown below. Note that some graphics may not appear due to the objects embedded in the electronic version of NFPA 25):

Annex X Reliability Centered Maintenance (Extracted from NFPA 70B for use by the NFPA 25 Technical Committees)

N.1 Definitions. These definitions are referenced in several reliability publications and the formulas can be verified in MIL-STD-339, *Wiring and Wiring Devices for Combat and Tactical Vehicles, Selection and Installation of*, or in IEEE 100, *Authoritative Dictionary of IEEE Standards Terms*.

N.1.1 Availability. The probability that a system or product will be available to perform its intended mission or function when called upon to do so at any point in time. It can be measured in one of several ways.

N.1.1.1 Function of Uptime. Availability can be considered as the percent of total time that a system is available. It is measured using Equation 1 (note that the period of time over which this measure of availability is made must be defined). Downtime includes administrative time and delays, as well as time for maintenance and repair.

$$\text{Availability} = \frac{\text{Uptime}}{\text{Downtime+Uptime (Total time)}}$$

[Eq 1]

N.1.1.2 Operational Availability.

N.1.1.2.1 Another equation for availability directly uses parameters related to the reliability and maintainability characteristics of the item as well as the support system. Equation 2 reflects this measure.

$$\text{Operational Availability} = \frac{\text{Mean Time Between Maintenance (MTBM)}}{\text{Mean Downtime + MTBM}}$$

[Eq 2]

N.1.1.2.2 In Equation 2, MTBM includes all maintenance required for any reason, including repairs of actual design failures, repairs of induced failures, cases where a failure cannot be confirmed, and preventive maintenance.
N.1.1.3 Inherent Availability. When only maintenance required to correct design failures is counted and the effects of the support system are ignored, the result is inherent availability, which is given by Equation 3.

$$\text{Inherent Availability} = \frac{\text{Mean Time Between Failures (MTBF)}}{\text{Mean Time to Repair+MTBF}}$$

[Eq 3]

N.1.2 RCM Maintenance. Those activities and actions that directly retain the proper operation of an item or restore that operation when it is interrupted by failure or some other anomaly. (Within the context of RCM, proper operation of an item means that the item can perform its intended function.) These activities and actions include removal and replacement of failed items, repair of failed items, lubrication, servicing (includes replenishment of consumables such as fuel), and calibrations. Other activities and resources are needed to support maintenance. These include spares, procedures, labor, training, transportation, facilities, and test equipment. These activities and resources are usually referred to as logistics. Although some organizations might define maintenance to include logistics, it is used in this section in the more limited sense and does not include logistics.

N.1.2.1 Corrective Maintenance. Actions required to restore a failed item to proper operation. Restoration is accomplished by removing the failed item and replacing it with a new item, or by fixing the item by removing and replacing it with a new item, or by fixing the item by removing and replacing internal components or by some other repair action.

N.1.2.2 Preventive Maintenance. Scheduled activities based on an interval to ensure safety, reduce the likelihood of operational failures, and obtain as much useful life as possible from an item.

N.1.2.3 Condition-Based Maintenance. Actions performed on the basis of observed wear or on predicting when the risk of failure is excessive.

N.1.2.3.1 Some items exhibit wear as they are used. If the probability of failure can be related to a measurable amount of wear, it might be possible to prescribe how much wear can be tolerated before the probability of failure reaches some unacceptable level. If so, then this point becomes the criterion for removal or overhaul. Measurement can be done using a variety of techniques depending on the characteristic being measured. ~~The temperature of electrical equipment, for example, can be measured using infrared thermography.~~

N.1.2.3.2 In predictive maintenance, a given operating characteristic of the item, current, or temperature, for example, is trended and compared with the known "normal" operating levels. An acceptable range is established with either upper and lower limits or some maximum or minimum level. As long as the trend data remain inside the acceptable values, any variation is considered to be normal deviation due to variances in materials, operating environment, and so forth. When the trend line intersects the "unacceptable" limit line, preventive maintenance is required to avoid a failure in the future. The limits are based on knowledge of the normal operating characteristics and the level of risk of failure that is acceptable.

N.1.3 Reliability. The probability that an item will perform its intended function(s) without failure for a specified time under stated conditions.

N.1.4 Reliability-Centered Maintenance (RCM). A logical, structured framework for determining the optimum mix of applicable and effective maintenance activities needed to sustain the operational reliability of systems and equipment while ensuring their safe and economical operation and support.

N.2 Benefits of RCM.

N.2.1 Reduced Costs. Savings have been achieved by industries for equipment when going from a traditional to an RCM-based PM program. It is important to note that these costs savings were achieved with no reduction in safety.

N.2.2 Increased Availability. For many systems, availability is of primary importance. The level of availability achieved in actual use of a product is a function of how often it fails and how quickly it can be restored to operation. The latter, in turn, is a function of how well the product was designed to be maintainable, the amount of PM required, and the logistics resources and infrastructure that have been put in place to support the product. RCM directly contributes to availability by reducing PM to that which is essential and economic.

N.3 Relationship of RCM to Other Disciplines.

N.1.2 RCM Maintenance. Those activities and actions that directly retain the proper operation of an item or restore that operation when it is interrupted by failure or some other anomaly. (Within the context of RCM, proper operation of an item means that the item can perform its intended function.) These activities and actions include removal and replacement of failed items, repair of failed items, lubrication, servicing (includes replenishment of consumables such as fuel), and calibrations. Other activities and resources are needed to support maintenance. These include spares, procedures, labor, training, transportation, facilities, and test equipment. These activities and resources are usually referred to as logistics. Although some organizations might define maintenance to include logistics, it is used in this section in the more limited sense and does not include logistics.

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N.3 Relationship of RCM to Other Disciplines.

N.3.1 Reliability. Much of the analysis needed for reliability provides inputs necessary for performing an RCM analysis. The fundamental requirement of the RCM approach is to understand the failure characteristics of an item. As used herein, failure characteristics include the consequences of failure, and whether or not the failure manifests itself and, if it does, how. Reliability is measured in different ways, depending on one's perspective: inherent reliability, operational reliability, mission (or functional) reliability, and basic (or logistics) reliability. RCM is related to operational reliability.

N.3.1.1 Inherent Versus Operational Reliability. From a designer's perspective, reliability is measured by "counting" only those failures that are design-related. When measured in this way, reliability is referred to as "inherent reliability." From a user's or operator's perspective, any event that causes the system to stop performing its intended function is a failure event. These events include all design-related failures that affect the systems' function. Also included are maintenance-induced failures, no-defect-found events, and other anomalies that might have been outside the designer's contractual responsibility or technical control. This type of reliability is called "operational reliability."

N.3.1.2 Mission-Critical or Functional Reliability Versus Basic or Logistics Reliability. Any failure that causes the product to fail to perform its function or critical mission is counted in "mission-critical reliability." Redundancy improves mission-critical reliability. Consider a case where one part of a product has two elements in parallel where only one is needed (redundant). If a failure of one element of the redundant part of the product fails, the other continues to function, allowing the product to do its job. Only if both elements fail will a mission-critical failure occur.

N.3.1.3 Basic Reliability. In "basic" reliability, all failures are counted, whether or not a mission-critical or functional failure has occurred. This measure of reliability reflects the total demand that will eventually be placed on maintenance and logistics.

N.3.1.3.1 Safety. RCM specifically addresses safety and is intended to ensure that safety is never compromised.

N.3.1.3.2 Environmental Concerns. In the past several years, environmental concerns and issues involving regulatory bodies have been accorded importance in the RCM approach for some items that are equal (or nearly so) to safety. Failures of an item that can cause damage to the environment or that result in some federal or state law being violated can pose serious consequences for the operator of the item. So the RCM logic can be modified to specifically address environmental or other concerns.

N.3.1.3.3 Maintainability. RCM is a method for prescribing PM that is effective and economical. Whether or not a given PM task is effective depends on the reliability characteristics of the item in question. Whether or not a task is economical depends on many factors, including how easily the PM tasks can be performed. Ease of maintenance, corrective or preventive, is a function of how well the system has been designed to be maintainable. This aspect of design is called maintainability. Providing ease of access, placing items requiring PM where they can be easily removed, providing means of inspection, designing to reduce the possibility of maintenance-induced failures, and other design criteria determine the maintainability of a system.

N.4 Supporting Data. Data are critical to the success of an RCM analysis. Since conducting an RCM analysis requires an extensive amount of information, and much of this information is not available early in the design phase, RCM analysis for a new product cannot be completed until just prior to production. The data fall into four categories: failure characteristics, failure effects, costs, and maintenance capabilities and procedures. Table N.4 illustrates reliability and maintainability information crucial to an RCM analysis.

Table N.4 Reliability and Maintainability Information for RCM Analysis

Calculated Data	Formula for Calculation
Ao, Operational Availability	Ao = MTBM/(MTBM+MDT)
Ai, Inherent Availability	Ai = MTBF/(MBTF+MTTR)
R(t), Reliability (for time interval t)	$R(t) = e^{-\lambda t}$
MTBF, Mean Time Between Failures (h)	MTBF = Tp/Tf
BTTR, Mean Time To Repair (h)	MTTR = Rdt/Tf
MTTM, Mean Time To Maintain (h)	MTTM = Mdt/Tma
MDT, Mean Downtime (h)	MDT = (Rdt + Rlt + Mdt)/Tde
Probability of satisfactory start, prob_s_s	Prob_s_s = total_start/total_attempt
Probability of failure to start, prob_f_s	Prob_f_s = total_fail_start/total_attempt
Hrdt/Year, Hours Downtime per Year	Hrdt/Year = (1 − Ao) × 8760

N.5 Reliability, Inherent Availability, and Operational Availability Data. Table N.5 is provided to help you understand and properly apply the data categories in your analysis. The summary information calculated from the individual equipment records is also included. Calculation formulas for each category are given in Table N.4. These definitions are referenced in several reliability publications, and the formulas can be verified in MIL-STD-339 or in the IEEE standard definition publication.

(See Table N.5 on the following pages.)

N.6 FMECA Procedure as Part of an RCM Program.

N.6.1 Part of an effective RCM program is to determine the failure modes effects and conduct criticality analysis of all systems (FMECA), determine the risk priority based on the product of the severity level of a component, failure occurrence level, and detection level.

N.6.2 Determine the failure modes associated with each system (i.e. chilled water supply can have no water flow or degraded flow). Assign a failure mechanism to each failure mode (i.e. degraded flow can be the result of leaky gasket, low supply voltage to motor) and determine the failure effects on system (i.e. no effect, decrease in chiller water temperature). Severity levels are assigned along with probability of failure and a risk priority is determined. This provides for greater emphasis and funding to be assigned to systems that have a greater risk of failure. Therefore systems with higher risk priority would receive more preventive and predictive maintenance than systems with lower risk priorities.

N.6.3 Risk priority is classified with a number, risk priority number (RPN). This is equal to the product of severity level of a component, occurrence level, and detection level as noted below with the sum of RPN's for each component within a critical system:

$$\text{sum}\frac{\text{S (RPN)n;where RPN=O}\times\text{S}\times\text{D}}{\text{(Occurrence } \times \text{ Severity } \times \text{ Detection)}}_{\text{n=1}}$$

N.6.4 The purpose of preventive maintenance is not to prevent every component failure from occurring but to prevent the system operational failure. Critical components/sub-systems that compromises system operation should receive a high degree of preventive and predictive maintenance. These are critical components or sub-systems. A component/sub-system that represents a single point failure that does not compromise the system would receive less preventive and predictive maintenance or even just run to failure.

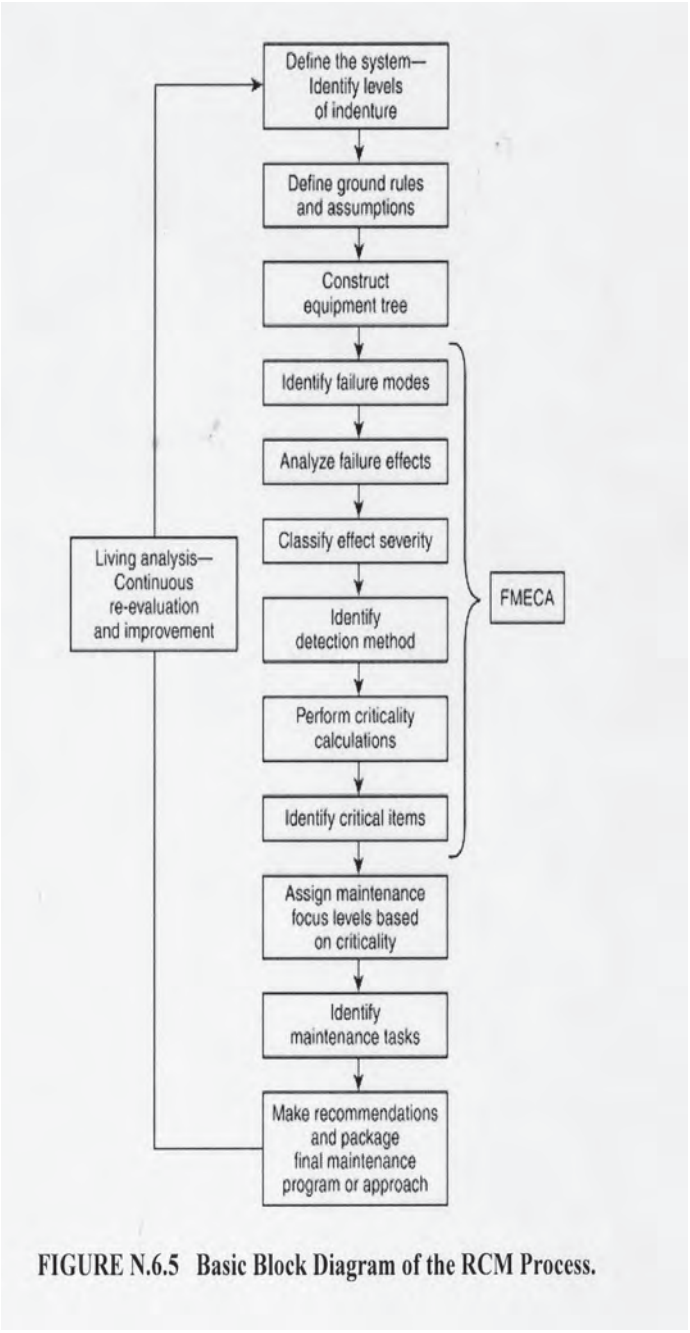

FIGURE N.6.5 Basic Block Diagram of the RCM Process.

Table N.5 Reliability, Inherent Availability, and Operational Availability Data

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	**CLASS[b]**	**Reliability[c]**	**Inherent Availability[d]**	**Operational Availability[e]**
Accumulator		0.993467721	0.999993849	0.999884828
	Accumulator, Pressurized.	0.993913727	0.999992102	0.999841861
	Accumulator, Unpressurized.	0.992345933	0.999998246	0.999992983
Air Compressor		0.964395571	0.999966392	0.999377084
	Air Compressor, Electric.	0.926805720	0.999919556	0.999207149
	Air Compressor, Fuel.	0.989726301	0.999996935	0.999487902
Air Dryer		0.997716217	0.999998695	0.999926162
	Air Dryer, All Types.	0.997716217	0.999998695	0.999926162
Air Handling Unit		0.989056337	0.999997032	0.999875595
	Air Handling Unit, Non-humid wo/Drive.	0.989056337	0.999997032	0.999875595
Arrester		0.998679474	0.999999397	0.999999397
	Arrester, Lightning.	0.998679474	0.999999397	0.999999397
Battery		0.993006248	0.999990299	0.999969547
	Battery, Gel Cell-Sealed, Strings.	0.980061731	0.999995402	0.999967422
	Battery, Lead Acid, System.	0.992563514	0.999972627	0.999968207
	Battery, Nickel-Cadmium.	0.999399558	0.999999292	0.999971403
Blower		0.999825378	1.000000000	0.999960812
	Blower, wo/Drive.	0.999825378*	1.000000000	0.999960812
Boiler		0.878642210	0.999360697	0.995132436
	Boiler, Hot Water, Gravity and Circulated.	0.959008598	0.999985268	0.999501894
Steam		0.842870823	0.999064090	0.993057393
	Boiler, Steam, High Pressure.	0.928026957	0.999619462	0.991492148
	Boiler, Steam, Low Pressure.	0.719936234	0.998154400	0.995621239
Bus Duct		0.999696290	1.000000000	1.000000000
	Bus Duct, All types, (100 ft).	0.999696290*	1.000000000	1.000000000
Cabinet Heaters		0.999897930	0.999999994	0.999978224
	Cabinet Heaters, Forced Air Flow, Steam or Hot Water.	0.999897930	0.999999994	0.999978224
Cable		0.998149212	0.999998818	0.999987869
Above Ground		0.999509398	0.999999527	0.999998357
	Cable, Above Ground, In Conduit, ≤600V, Per 1000 ft.	0.999932074	0.999999938	0.999990264
	Cable, Above Ground, In Conduit, >600V ≤5kV, Per 1000 ft.	0.999463225	0.999999476	0.999998707
	Cable, Above Ground, No Conduit, ≤600V, Per 1000 ft.	0.999879838	0.999999966	0.999999904
	Cable, Above Ground, No Conduit, >600V ≤5kV, Per 1000 ft.	0.999244433	0.999999655	0.999999655
	Cable, Above Ground, Trays, ≤600V, Per 1000 ft.	0.968468243*	1.000000000	1.000000000
	Cable, Above Ground, Trays, >600V ≤5kV, Per 1000 ft.	0.997171966*	1.000000000	1.000000000
Aerial		0.988381339	0.999997295	0.999997259
	Cable, Aerial, ≤15kV, Per Mile.	0.953928762	0.999990218	0.999990218

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	**CLASS[b]**	**Reliability[c]**	**Inherent Availability[d]**	**Operational Availability[e]**
	Cable, Aerial, >15kV, Per Mile.	0.995896395	0.999998806	0.999998762
Below Ground		0.994225869	0.999995527	0.999928197
	Cable, Below Ground, Duct, ≤600V, Per 1000 ft.	0.999875009	0.999999766	0.999999697
	Cable, Below Ground, Duct, >600V ≤5kV, Per 1000 ft.	0.987125021*	1.000000000	1.000000000
	Cable, Below Ground, In Conduit, ≤600V, Per 1000 ft.	0.997994901	0.999997428	0.999991686
	Cable, Below Ground, In Conduit >600V ≤5kV, per 1000 ft.	0.997646877	0.999995779	0.999987126
	Cable, Below Ground, Insulated, >5kV, Per 1000 ft.	0.980031515	0.999988193	0.999674546
	Cable, Below Ground, Insulated, ≤600V, Per 1000 ft.	0.973653295	0.999976836	0.999976836
Insulated		0.992748496	0.999998338	0.999998338
	Cable, Insulated, DC, Per 100 ft.	0.992748496	0.999998338	0.999998338
Cable Connection		0.999629261	0.999999968	0.999999968
Capacitor Bank		0.839937440	0.999954142	0.999942075
	Capacitor Bank, Power Factor Corrector, (in kVAR).	0.839937440	0.999954142	0.999942075
Charger		0.992621004	0.999999577	0.999986472
	Charger, Battery.	0.992621004	0.999999577	0.999986472
Chiller		0.888515818	0.999829779	0.997620632
	Chiller, Absorption.	0.841986658	0.999769437	0.995132437
	Chiller, Centrifugal, 600 - 1000 Tons.	0.955142622	0.999923928	0.997604888
	Chiller, Reciprocating, Closed, w/Drive, 50 - 200 Tons.	0.879941865	0.999809524	0.998734968
	Chiller, Reciprocating, Open, wo/Drive, 50 - 200 Tons.	0.826705884	0.999775088	0.999312485
	Chiller, Rotary, 600 - 1000 Tons.	0.986993503	0.999964132	0.996197991
	Chiller, Screw, >300 Tons.	0.956286690	0.999510164	0.996566046
Circuit Breaker, 600V		0.999996752	0.999999582	0.999983888
3 Phase, Fixed		0.999996551	0.999999899	0.999992732
	Circuit Breaker, 600V, 3 Phase, Fixed, Including molded case, ≤600 amp, Normally Closed, Trp. Ckt. Incl.	0.999984307*	1.000000000	0.999997443
	Circuit Breaker, 600V, 3 Phase, Fixed, Including molded case, ≤600 amp, Normally Open, Trp. Ckt. Incl.	0.999887215	0.999999760	0.999990187
	Circuit Breaker, 600V, 3 Phase, Fixed, Including molded case, >600 amp, Normally Closed, Trp. Ckt. Incl.	0.999994218*	1.000000000	0.999992509
	Circuit Breaker, 600V, 3 Phase, Fixed, Including molded case, >600V ≤5kV	0.996576534	0.999985320	0.999880051
Drawout (Metal Clad)		0.998892235	0.999999605	0.999837990
	Circuit Breaker, 600V, Drawout (Metal Clad), <600 amp, Normally Closed, Trp. Ckt. Incl.	0.999792091	0.999999858	0.999798004
	Circuit Breaker, 600V, Drawout (Metal Clad), <600 amp, Normally Open, Trp. Ckt. Incl.	0.997456731	0.999998256	0.999860901

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	**CLASS[b]**	**Reliability[c]**	**Inherent Availability[d]**	**Operational Availability[e]**
	Circuit Breaker, 600V, Drawout (Metal Clad), >600 amp, Normally Closed, Trp. Ckt. Incl.	0.998150509	0.999999894	0.999954301
	Circuit Breaker, 600V, Drawout (Metal Clad), >600 amp, Normally Open, Trp. Ckt. Incl.	0.994487152	0.999998738	0.999927638
Vacuum		0.980129686	0.999975385	0.999852780
	Circuit Breaker, 5kV, Vacuum, <600 amp, Normally Closed, Trp. Ckt. Incl.	0.997191564	0.999997432	0.999960511
	Circuit Breaker, 5kV, Vacuum, <600 amp, Normally Open, Trp. Ckt. Incl.	0.998887668*	1.000000000	0.999983060
	Circuit Breaker, 5kV, Vacuum, >600 amp, Normally Closed, Trp. Ckt. Incl.	0.976752059	0.999960259	0.999619774
	Circuit Breaker, 5kV, Vacuum, >600 amp, Normally Open, Trp. Ckt. Incl.	0.961020019	0.999957368	0.999854272
Compressor		0.986548811	0.999986587	0.999865676
	Compressor, Refrigerant, >1 Ton.	0.995193627	0.999998075	0.999907183
	Compressor, Screw Type.	0.946328222	0.999931777	0.999667651
Condensers		0.900083857	0.999913810	0.999583534
	Condensers, Double Tube.	0.973573588	0.999992357	0.999758971
	Condensers, Propeller Type Fans/Coils, DX.	0.733621551	0.999734138	0.999393134
	Condensers, Shell and Tube.	0.998878743*	1.000000000	0.999614286
Control Panel		0.994698171	0.999998908	0.999800824
	Control Panel, Generator, wo/Switchgear.	0.988952766	0.999997330	0.999980962
	Control Panel, HVAC/Chillers/AHUs, wo/Switchgear.	0.999848787*	1.000000000	0.999982209
	Control Panel, Switchgear controls.	0.980568763	0.999997149	0.998160003
Convectors		0.999913016	1.000000000	0.999998481
	Convectors, Fin Tube Baseboard, Electric.	0.999582861*	1.000000000	0.999999626
	Convectors, Fin Tube Baseboard, Steam or Hot Water.	0.999890105*	1.000000000	0.999998180
Cooling Tower		0.968333522	0.999702865	0.997170520
	Cooling Tower, Atmospheric Type, wo/fans, motors, pumps, valves, etc.	0.928543791	0.999247479	0.994184363
	Cooling Tower, Evaporative Type, wo/fans, motors, pumps, valves, etc.	0.994195540	0.999988924	0.999046330
Damper Assembly		0.999971953	0.999999975	0.999990131
	Damper Assembly, Motor.	0.999966919*	1.000000000	0.999989337
	Damper Assembly, Pneumatic.	0.999277503	0.999999835	0.999994555
Diesel Engine Generator		0.589772164	0.998540049	0.993985981
Packaged		0.775917369	0.999329810	0.997272882
	Diesel Engine Generator, Packaged, 250kW-1.5MW, Continuous.	0.558396351	0.998287624	0.996927250
	Diesel Engine Generator, Packaged, 250kW-1.5MW, Standby.	0.883822868	0.999742312	0.997409685

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	CLASS[b]	Reliability[c]	Inherent Availability[d]	Operational Availability[e]
Unpackaged		0.317735957	0.996759289	0.986574653
	Diesel Engine Generator, Unpackaged, 750kW-7MW, Continuous.	0.162719469	0.994801067	0.980739869
	Diesel Engine Generator, Unpackaged, 750kW-7MW, Standby.	0.531004159	0.998262059	0.991052357
Drive		0.978172315	0.999958316	0.999925947
	Drive, Adjustable Speed.	0.978172315	0.999958316	0.999925947
Evaporator		0.995968933	0.999993228	0.999908962
Coil		0.995812835	0.999992633	0.999899263
	Evaporator, Coil, Direct Expansion.	0.995812835	0.999992633	0.999899263
Shell Tube		0.997036799	0.999997290	0.999975270
	Evaporator, Shell Tube, Direct Expansion.	0.997036799	0.999997290	0.999975270
Fan		0.987559807	0.999971610	0.999351118
	Fan, Centrifugal.	0.981021428	0.999946483	0.999770440
	Fan, Propeller/Disc.	0.989640193	0.999957798	0.999093547
	Fan, Tubeaxial.	0.989938879	0.999990870	0.999055744
	Fan, Vaneaxial.	0.996408668*	1.000000000	1.000000000
Filter		0.999898973	1.000000000	0.999903911
	Filter, Electrical Tempest.	0.998510134*	1.000000000	1.000000000
Mechanical		0.999891630	1.000000000	0.999896927
	Filter, Mechanical, Air Regulator Set.	0.999840000*	1.000000000	0.999981949
	Filter, Mechanical, Fuel Oil.	0.999271146*	1.000000000	0.999910729
	Filter, Mechanical, Lube Oil.	0.999377566*	1.000000000	0.999554311
Fuse		0.997969725	1.000000000	1.000000000
	Fuse, >5kV ≤15kV.	0.999341365*	1.000000000	1.000000000
	Fuse, 0-5kV.	0.998627456*	1.000000000	1.000000000
Gas Turbine Generator		0.647849145	0.998890863	0.990692798
Packaged		0.587787144	0.998689955	0.989043771
	Gas Turbine Generator, Packaged, 750kW-7MW, Continuous.	0.177710554	0.994598022	0.983584136
	Gas Turbine Generator, Packaged, 750kW-7MW, Standby.	0.829472916	0.999868149	0.990615770
Unpackaged		0.994155201	0.999775158	0.997950995
	Gas Turbine Generator, Unpackaged, 750kW-7MW, Continuous.	0.994155201	0.999775158	0.997950995
Gauge		0.999042094	1.000000000	0.999999785
	Gauge, Fluid level.	0.999042094*	1.000000000	0.999999785

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	CLASS[b]	Reliability[c]	Inherent Availability[d]	Operational Availability[e]
Heat Exchanger		0.989034610	0.999997303	0.998935596
	Heat Exchanger, Boiler System, Steam.	0.971835048	0.999998369	0.997231137
	Heat Exchanger, Lube Oil.	0.996596565	0.999995330	0.999740960
	Heat Exchanger, Water to Water.	0.996130029*	1.000000000	0.999861134
Heater		0.947826981	0.999984168	0.994164558
	Heater, Electric, Lube/Fuel Oil or Jacket.	0.947826981	0.999984168	0.994164558
Humistat		0.984575905	0.999998226	0.999998226
	Humistat, Assembly.	0.984575905	0.999998226	0.999998226
Inverters		0.995190512	0.999985691	0.999598793
	Inverters, All Types.	0.995190512	0.999985691	0.999598793
Meter		0.998913484	0.999993988	0.999993961
	Meter, Electric.	0.999635167	0.999999958	0.999999958
	Meter, Fuel.	0.946014073	0.999543853	0.999543853
	Meter, Water.	0.999621152	0.999999870	0.999999697
Motor Generator Set		0.975052652	0.999978501	0.993070544
	Motor Generator Set, 3 Phase, 400 Hz.	0.995075131	0.999995491	0.999628032
	Motor Generator Set, 3 Phase, 60 Hz.	0.957963867	0.999963722	0.987366458
Motor Starter		0.999147052	0.999995416	0.999944527
	Motor Starter, ≤600V.	0.998167781*	1.000000000	0.999984223
	Motor Starter, >600V.	0.996875738	0.999991427	0.999909983
Motor, Electric		0.999032041	0.999973300	0.999930849
	Motor, Electric, DC.	0.985531708	0.999031729	0.998182336
Induction		0.981918899	0.999992950	0.999724259
	Motor, Electric, Induction, ≤600V.	0.988992708	0.999998736	0.999957372
	Motor, Electric, Induction, >600V.	0.974689985	0.999986993	0.999484292
Single Phase		0.999980411	0.999999987	0.999988267
	Motor, Electric, Single Phase, ≤5 amp.	0.999979878*	1.000000000	0.999996192
	Motor, Electric, Single Phase, >5 amp.	0.998550210	0.999999503	0.999696847
Synchronous		0.998653401	0.999978284	0.999857033
	Motor, Electric, Synchronous, ≤600V.	0.996555656*	1.000000000	0.999777580
	Motor, Electric, Synchronous, >600V.	0.991366824	0.999964367	0.999907948
Motor, Mechanical		0.195448823	0.999809717	0.998810724
Diesel		0.904562026	0.999953538	0.991433654
	Motor, Mechanical, Diesel.	0.904562026	0.999953538	0.991433654
Gas		0.161029030	0.999791533	0.999743425
	Motor, Mechanical, Gas.	0.161029030	0.999791533	0.999743425

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	CLASS[b]	Reliability[c]	Inherent Availability[d]	Operational Availability[e]
Pipe		0.981888041	0.999994337	0.999991952
	Pipe, Flex, Non-Reinforced, >4 inch.	0.985560776	0.999994466	0.999990038
	Pipe, Flex, Reinforced, >4 inch.	0.977618384	0.999994186	0.999994186
Piping		0.999960899	0.999998770	0.999676366
Refrigerant		0.999954550	0.999999430	0.999990919
	Piping, Refrigerant, <1 inch.	0.999925556*	1.000000000	0.999993884
	Piping, Refrigerant, <2 inch.	0.997181886	0.999996564	0.999986684
	Piping, Refrigerant, >2 inch.	0.999822269*	1.000000000	1.000000000
	Piping, Refrigerant, 1-3 inch.	0.993176045	0.999993747	0.999895362
Water		0.999720116	0.999994706	0.997739077
	Piping, Water, ≤2 inch.	0.998834378*	1.000000000	1.000000000
	Piping, Water, >12 inch.	0.939385452*	1.000000000	1.000000000
	Piping, Water, >2 ≤4 inch.	0.979679275	0.999966994	0.999966994
	Piping, Water, >4 ≤8 inch.	0.998103531*	1.000000000	1.000000000
	Piping, Water, >8 ≤12 inch.	0.999374866*	1.000000000	0.994961083
Pressure Control		0.993091820	0.999995568	0.999938101
	Pressure Control, Assembly.	0.993091820	0.999995568	0.999938101
Pressure Regulator		0.999163441	1.000000000	0.999993069
Hot Gas		0.999163441	1.000000000	0.999993069
	Pressure Regulator, Hot Gas.	0.999163441*	1.000000000	0.999993069
Pump		0.993705867	0.999994889	0.999826613
Centrifugal		0.994206434	0.999995523	0.999903450
	Pump, Centrifugal, Integral Drive.	0.992515450	0.999993654	0.999897429
	Pump, Centrifugal, wo/Drive.	0.995791244	0.999997272	0.999909083
	Pump, Positive Displacement.	0.991821538	0.999992500	0.999537023
Radiators		0.987545587	0.999977760	0.999934189
	Radiators, Small Tube.	0.987545587	0.999977760	0.999934189
Rectifiers		0.995540658	0.999991837	0.998972976
	Rectifiers, All Types.	0.995540658	0.999991837	0.998972976
Sending Unit		0.999566658	0.999999536	0.999999258
Air Velocity		0.998867884	0.999998707	0.999997599
	Sending Unit, Air Velocity.	0.998867884	0.999998707	0.999997599
	Sending Unit, Pressure.	0.997916028	0.999997883	0.999997089
	Sending Unit, Temperature.	0.999980697*	1.000000000	1.000000000
Software Con. ADAS Sys.		0.642221250	0.999854564	0.999658784
	Software Con. ADAS Sys., ≤1000 Acquisition Points.	0.777690112	0.999954199	0.999888246
	Software Con. ADAS Sys., >1000 Acquisition Points.	0.428800729	0.999644282	0.999174503

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	**CLASS[b]**	**Reliability[c]**	**Inherent Availability[d]**	**Operational Availability[e]**
Strainer		0.999943310	1.000000000	0.999916767
	Strainer, Coolant.	0.998861684*	1.000000000	0.999333463
	Strainer, Duplex Fuel/Lube Oil.	0.995679886*	1.000000000	0.999861421
	Strainer, Fuel Oil.	0.998766615*	1.000000000	0.999924447
	Strainer, Lube Oil.	0.999529759*	1.000000000	0.999881981
Water		0.999926442	1.000000000	0.999960363
	Strainer, Water, ≤4 inch.	0.999920044*	1.000000000	0.999999893
	Strainer, Water, >4 inch.	0.999081068*	1.000000000	0.999505864
Switch		0.993744427	0.999996988	0.999960651
Automatic Transfer		0.950118163	0.999976051	0.999857315
	Switch, Automatic Transfer, >600 amp., ≤600V.	0.968631015	0.999994046	0.999809981
	Switch, Automatic Transfer, 0-600 amp., ≤600V.	0.917774618	0.999943753	0.999942269
Disconnect		0.999846881	0.999999966	0.999961037
	Switch, Disconnect, Enclosed, ≤600V.	0.999394569*	1.000000000	0.999938186
	Switch, Disconnect, Enclosed, >5kV.	0.998257804	0.999999801	0.999939288
	Switch, Disconnect, Enclosed, >600V ≤5kV.	0.997942528*	1.000000000	0.999867230
	Switch, Disconnect, Fused, DC, >600 amp., ≤600V.	0.999408178*	1.000000000	1.000000000
	Switch, Disconnect, Fused, DC, 0-600 amp., ≤600V.	0.999367257*	1.000000000	0.999987568
	Switch, Electric, On/Off Breaker Type, Non-knife., ≤600V.	0.999358198	0.999999927	0.999999780
Float		0.997716932	0.999999478	0.999985388
	Switch, Float, Electric.	0.997716932	0.999999478	0.999985388
Manual Transfer		0.999129111	1.000000000	0.999966262
	Switch, Manual Transfer, ≤600 amp., ≤600V.	0.997919138*	1.000000000	0.999952908
	Switch, Manual Transfer, >600 amp., ≤600V.	0.998503402*	1.000000000	0.999975863
	Switch, Oil Filled, ≥5kV.	0.998241979*	1.000000000	0.999996849
Static		0.997748999	0.999996656	0.999919287
	Switch, Static, >1000 amp., ≤600V.	0.996326697	0.999989918	0.999739539
	Switch, Static, >600 ≤1000 amp., ≤600V.	0.992336720	0.999998244	0.999994731
	Switch, Static, 0-600 amp. ≤600V.	0.998950665*	1.000000000	0.999999648
Switchgear		0.991916417	0.999974462	0.999585725
Bare Bus		0.989863408	0.999968286	0.999579123
	Switchgear, Bare Bus, ≤600V, All Cabnets,Ckt. Bkrs. Not Included.	0.990554799	0.999992098	0.999455269
	Switchgear, Bare Bus, >5kV, All Cabnets,Ckt. Bkrs. Not Included.	0.982216877	0.999995342	0.999839597
	Switchgear, Bare Bus, >600V ≤5kV, All Cabnets,Ckt. Bkrs. Not Included.	0.997007868	0.999872746	0.999607036

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	CLASS[b]	Reliability[c]	Inherent Availability[d]	Operational Availability[e]
Insulated Bus		0.999613608	0.999989619	0.999601929
	Switchgear, Insulated Bus, ≤600V, All Cabnets,Ckt. Bkrs. Not Included.	0.998420947*	1.000000000	0.999468794
	Switchgear, Insulated Bus, >5kV, All Cabnets,Ckt. Bkrs. Not Included.	0.995913049	0.999982547	0.999626621
	Switchgear, Insulated Bus, >600V ≤5kV, All Cabnets,Ckt. Bkrs. Not Included.	0.996224761	0.999996546	0.999696028
Tank		0.995965564	0.999991636	0.999971186
Day		0.994810377	0.999997030	0.999974756
	Tank, Day, Genset Fuel.	0.994810377	0.999997030	0.999974756
Fuel		0.993549151	0.999955673	0.999872929
	Tank, Fuel.	0.993549151	0.999955673	0.999872929
Receiver		0.997280535	0.999997824	0.999996891
	Tank, Receiver, Air.	0.997280535	0.999997824	0.999996891
Water		0.996377265	0.999999793	0.999989539
	Tank, Water.	0.996377265	0.999999793	0.999989539
Thermostat		0.998319168	0.999999398	0.999997565
	Thermostat, Radiator.	0.998319168	0.999999398	0.999997565
Transducer		0.999978470	0.999999933	0.999998552
Flow		0.996713345	1.000000000	0.999986736
	Transducer, Flow.	0.996713345*	1.000000000	0.999986736
Pressure		0.997477750	0.999999423	0.999987243
	Transducer, Pressure.	0.997477750	0.999999423	0.999987243
Temperature		0.998242572	0.999999950	0.999999026
	Transducer, Temperature.	0.998242572	0.999999950	0.999999026
Transformer, Dry		0.999953743	0.999995817	0.999971899
Air Cooled		0.999882198	1.000000000	0.999944571
	Transformer, Dry, Air Cooled, ≤500kVA.	0.999775100*	1.000000000	0.999995570
	Transformer, Dry, Air Cooled, >1500kVA ≤3000kVA.	0.999393210*	1.000000000	0.999745124
	Transformer, Dry, Air Cooled, >500kVA ≤1500kVA.	0.999582527*	1.000000000	0.999987102
Isolation		0.997166548	0.999993113	0.999989567
	Transformer, Dry, Isolation, Delta Wye, <600V.	0.997166548	0.999993113	0.999989567
Transformer, Liquid		0.994797669	0.999950735	0.998990580
Forced Air		0.989259891	0.999836759	0.996601877
	Transformer, Liquid, Forced Air, ≤10,000kVA.	0.992879584	0.999797696	0.990915913
	Transformer, Liquid, Forced Air, ≤5,000kVA.	0.987452327	0.999994736	0.999987215
	Transformer, Liquid, Forced Air, >10,000kVA ≤50,000kVA.	0.994329760	0.999065253	0.985856760

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	**CLASS[b]**	**Reliability[c]**	**Inherent Availability[d]**	**Operational Availability[e]**
Non-Forced Air		0.997113141	0.999998203	0.999985412
	Transformer, Liquid, Non-Forced Air, ≤3000kVA.	0.998891114	0.999999367	0.999996102
	Transformer, Liquid, Non-Forced Air, >10000kVA ≤50000kVA.	0.982624792	0.999987813	0.999893406
	Transformer, Liquid, Non-Forced Air, >3000kVA ≤10000kVA.	0.994771048	0.999999402	0.999985038
UPS		0.999078297	0.999998349	0.999951289
Rotary		0.995983397	1.000000000	0.999895500
	UPS, Rotary.	0.995983397*	1.000000000	0.999895500
Small Computer Room Floor		0.990661925	0.999997858	0.999967870
	UPS, Small Computer Room Floor.	0.990661925	0.999997858	0.999967870
Valve		0.999995192	0.999999568	0.999977752
3-way		0.999727982	1.000000000	0.999987577
	Valve, 3-way, Diverting/Sequencing.	0.999257278*	1.000000000	0.999999501
	Valve, 3-way, Mixing Control.	0.999570876*	1.000000000	0.999980689
Ball		0.999807822	0.999999957	0.999999204
	Valve, Ball, N.C.	0.999516658*	1.000000000	0.999998106
	Valve, Ball, N.O.	0.998749718	0.999999929	0.999999929
Butterfly		0.998692271	0.999999513	0.999995506
	Valve, Butterfly, N.C.	0.991788585	0.999996931	0.999990199
	Valve, Butterfly, N.O.	0.999965510*	1.000000000	0.999996507
Check		0.999742108	0.999999971	0.999980199
	Valve, Check.	0.999742108	0.999999971	0.999980199
Control		0.999937125	0.999999943	0.999996490
	Valve, Control, N.C.	0.999922211	0.999999929	0.999997478
	Valve, Control, N.O.	0.999832761*	1.000000000	0.999992325
Expansion		0.999742991	1.000000000	1.000000000
	Valve, Expansion.	0.999742991*	1.000000000	1.000000000
Gate		0.999827547	0.999999888	0.999999642
	Valve, Gate, N.C.	0.999421886	0.999999934	0.999998647
	Valve, Gate, N.O.	0.999872337	0.999999883	0.999999752
Globe		0.999980570	1.000000000	0.999921533
	Valve, Globe, N.C.	0.999975654*	1.000000000	0.999901776
	Valve, Globe, N.O.	0.999903788*	1.000000000	0.999999612
Plug		0.990331504	0.999997992	0.999997984
	Valve, Plug, N.C.	0.986191497	0.999997832	0.999997819
	Valve, Plug, N.O.	0.996093704	0.999998213	0.999998213

Table N.5 Reliability, Inherent Availability, and Operational Availability Data (continued)

Roll Up Report by Category, Class, and Item				
CATEGORY[a]	**CLASS[b]**	**Reliability[c]**	**Inherent Availability[d]**	**Operational Availability[e]**
Reducing		0.998490771	1.000000000	0.999972616
	Valve, Reducing, Makeup Water.	0.998490771*	1.000000000	0.999972616
Relief		0.998671145	0.999999696	0.999994763
	Valve, Relief.	0.998671145	0.999999696	0.999994763
Suction		0.998214603	0.999998521	0.999994094
	Valve, Suction.	0.998214603	0.999998521	0.999994094
Valve Operator		0.992808232	0.999991177	0.999971677
	Valve Operator, Electric.	0.990159307	0.999979209	0.999934083
Hydraulic		0.915817948	0.999969884	0.999601804
	Valve Operator, Hydraulic.	0.915817948	0.999969884	0.999601804
Pneumatic		0.995224402	0.999998361	0.999997541
	Valve Operator, Pneumatic.	0.995224402	0.999998361	0.999997541
Voltage Regulator		0.964377637	0.999690405	0.999644857
	Voltage Regulator, Static.	0.964377637	0.999690405	0.999644857
Water Cooling Coil		0.999577258	0.999999879	0.999993176
Fan Coil Unit		0.999577258	0.999999879	0.999993176
	Water Cooling Coil, Fan Coil Unit.	0.999577258	0.999999879	0.999993176

N.6.5.1 Define the system: Identify each systems indenture levels. This identifies each system functional item and its associated failure modes for each functional output. These would be considered your different maintenance areas of concern.

N.6.5.2 Define ground rules and assumptions: The ground rules apply to mission system/equipment, analysis methods (what do we wish to prevent main power outage, operating time during mission stage, source of data).

N.6.5.3 Construct equipment tree. This is a block diagram of operation between indenture levels (function items) that provides different types of failure modes and effects.

N.6.5.4 Identify failure modes.

N.6.5.5 Analyze failure effects.

N.6.5.6 Classify effect severity

• (1) Identify detection method.

• (2) Perform criticality calculations

• (3) Identify critical items.

• (4) Assign maintenance focus based on criticality

• (5) Identify maintenance tasks.

• (6) Make recommendations and package final maintenance program or approach.

N.6.6 Example of FMECA.

N.6.6.1 Detection Method.

N.6.6.1.1 When system controls, automation configurations, and system safeguards are unknown, Detection Method Level can be assumed to be 1. This assumes and stresses that, for a mission critical facility, all item and system level function losses should and will be apparent.

N.6.6.1.2 Although this is an acceptable approach for initial analysis, and demonstration purposes, it should be understood that the presence, or absence, of detection method in a systems has a direct effect on the risk associated with the operation of that system. Therefore, consideration of detection method will provide more accurate and resolute analysis results and recommendations. Furthermore, an understanding of current detection method provisions, along with results of an analysis which considered detection method and component level failure modes, can and should be utilized to make recommendations on future detection method provisions.

N.6.6.2 Occurrence.

N.6.6.2.1 Equipment specific PREP database availability numbers will provide indication of failure frequency. These metrics will help to provide less subjective item and system risk assessments. However, they must be adjusted to account for system redundancy, and ranked into discrete occurrence levels to be used in qualitative equipment criticality calculations.

N.6.6.2.2 By design and purpose, a redundant system is more reliable and less vulnerable than a single point, with respect to system function and mission requirements. Therefore, the occurrence level for a single point function must be weighted to reflect the operation, presumed reliability, and severity of loss of function of the redundant component system as accurately as possible.

N.6.6.2.3 The following formula is used to calculate the adjusted availability of a given subsystem due to a level of component or subsystem redundancy.

$$\text{Ai1}Ai^{1} = \sum_{k-n}^{n} \frac{n!}{k:(n-k)!} (Ai)^{k} (1 - Ai)^{(n-k)}$$

where:

Ai = Initial inherent component availability

Ai 1 = Adjusted redundant component availability level

m = Minimum number of components needed

n = Number of components available

k = Current component in redundant system being analyzed

N.6.6.2.4 With availability metrics representative of system configuration now available, component availability is ranked to provide discrete subsystem occurrence levels, as shown in Table N.6.6.2.4.

Table N.6.6.2.4 Component Availability Rankings

Availability (nines)	Occurrence Rank	Occurrence Description
≥0.999999999	1	Almost Never
0.99999999	2	Remote
0.9999999	3	Very Slight
0.999999	4	Slight
0.99999	5	Low
0.9999	6	Medium
0.999	7	Moderately High
0.99	8	High
0.9	9	Very High
0	10	Almost Certain

N.6.6.3 Severity.

N.6.6.3.1 It is also important to consider the concept of failure severity. Severity pertains to and ranks the consequences of system level failure mode effects. For example, a highly probable failure may occur for a subsystem of a piece of critical equipment without severe consequences.

N.6.6.3.2 Severity rankings used are as shown in Table N.6.6.3.2.

Table N.6.6.3.2 Severity Rankings

Ranking	Effect	Comment
1	None	No reason to expect failure to have any effect on Safety, Health, Environment or Mission
2	Very Low	Minor disruption to mission.
3	Low	Minor disruption to mission.
4	Low to Moderate	Moderate disruption to mission.
5	Moderate	Moderate disruption to mission.
6	Moderate to High	Moderate disruption to mission.
7	High	High disruption to mission.
8	Very High	High disruption to mission.
9	Hazard	Extremely high disruption to mission
10	Hazard	Extremely high disruption to mission.

N.6.6.4 RPN Calculations and Ranking Methods for Flexible Analysis.

N.6.6.4.1 Severity, occurrence, and detection method levels are then utilized to produce a subsystem risk assessment as follows:

RPN=O×S×D

where:

RPN = Risk associated with failure mode (Risk Priority Number)

S = Severity level for failure mode

O = Occurrence level for failure mode

D = Detection method level (1)

N.6.6.4.2 This calculation will be performed for every subsystem item in the master equipment listing. With this information, Risk Priority Numbers for sub-systems and systems can be obtained as follows:

$$RPNs = \sum_{n=1}^{j} (RPNc)\,\mathrm{n}$$

where:

RPNs = Risk Priority Number for the current system being analyzed

RPNc = Risk Priority Number for the current subsystem

n = The current subsystem being analyzed

j = Total number of components in the sub-system or system

N.6.6.4.3 Results — System X. Item and system risk assessments can now be utilized to apply RCM decision logic (see Table N.6.6.4.3), and to build maintenance tasking program. Items and systems assessed to be of high operational risk should, especially, be applied to the decision logic and should receive high levels of maintenance focus. Items having extremely low operation risk will receive low levels of maintenance focus, and may be allowed to run to failure.

Table N.6.6.4.3 Example of Risk Priority Number Calculation

Facility Identifier	Equipment Type	Parent System	M	N	PREP ID	A	A′	O′ Ranked	S	RPN
A-1	A	X	1	2	13	0.999988924	0.9999999999	1	1	9
A-2	A	X	1	2	13	0.999988924	0.9999999999	1	9	9
B-1	B	X	1	4	163	0.999993654	1.00000000000	1	9	9
B-2	B	X	1	4	163	0.999993654	1.00000000000	1	9	9
B-3	B	X	1	4	163	0.999993654	1.00000000000	1	9	9
B-4	B	X	1	4	163	0.999993654	1.00000000000	1	9	9