

***Technical Committee on  
Hanging and Bracing of Water-Based  
Fire Protection Systems***

**MEMORANDUM**

**DATE:** September 6, 2011

**TO:** Principal and Alternate Members of the Technical Committee on Hanging and Bracing of Water Based Fire Protection Systems

**FROM:** Matt Klaus, Senior Fire Protection Engineer/NFPA Staff Liaison

**SUBJECT:** **AUT-HBS AGENDA PACKAGE – A2012 ROC Meeting**

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Enclosed is the agenda for the Report on Comments (ROC) meeting for NFPA 13, *Standard for the Installation of Sprinkler Systems*. NFPA 13 has entered the Annual 2012 revision cycle and will produce a 2013 Edition. It is imperative that you review the attached comments in advance and come to the ROC meeting with your ideas and substantiations for your views. If you have alternate suggestions for text changes, please come prepared with the words and respective substantiation.

For administrative questions, please feel free to contact Joanne Goyette at (617) 984-7950. For technical questions, please feel free to contact Matt Klaus at (617) 984-7448. You can also reach either of us via e-mail at [JGoyette@nfpa.org](mailto:JGoyette@nfpa.org) or [MKlaus@nfpa.org](mailto:MKlaus@nfpa.org). We look forward to meeting everyone in Newport Beach, CA at the Newport Beach Marriott Hotel and Spa.

Please note that there will be an HBS task group meeting at the Newport Beach Marriott Hotel and Spa on Tuesday, September 27, 2011. This is not formally part of the ROC meeting, however it will provide time for the task groups to review comments and formulate recommended committee actions and substantiations. If you have any questions on whether or not your task group is meeting, please contact your task group leader or Matt Klaus ([mklaus@nfpa.org](mailto:mklaus@nfpa.org)).

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## **PART 1 – MEETING AGENDA**

**REPORT ON COMMENTS (ROC) MEETING**  
**NFPA Technical Committee on**  
**Hanging and Bracing of Water-Based**  
**Fire Protection Systems**

Newport Beach Marriott  
Newport Beach, California  
September 27-28, 2011

**Task Group Meeting September 27, 2011**

1. 8:00 Room Open for Individual Task Group Discussions and Finalization of Proposal/Comments
2. 10:00 NFPA 15 Pipe Stand Task Group Presentation
3. 11:00 Prequalified Seismic Anchor Task Group Presentation
4. 12:00 Lunch
5. 1:15 Engineered Support Assemblies Task Group Presentation
6. 2:00 Seismic Loop Task Group Presentation
7. 2:45 Break
8. 3:00 Guest Presentation--John Silva--Concrete Anchors

## **September 28, 2011 AGENDA**

9. Call to Order at **8:00 AM**.
10. Self-Introductions of members and guests
11. Review of Distributed Meeting Materials
12. Approval of A12-ROP Meeting Minutes
13. Review of Meeting Procedures and Revision Process
14. Overview of Workload/Schedule/Agenda Additions
15. Address Public and Committee Comments
16. New Business
17. Next Cycle
18. Adjournment

## **PART 2 - TC ADDRESS LIST**

# Address List No Phone

8/31/2011  
Matthew J. Klaus  
AUT-HBS

## Hanging and Bracing of Water-Based Fire Protection Systems Automatic Sprinkler Systems

<b>James B. Biggins</b> <b>Chair</b> Global Risk Consultants Corporation 15732 West Barr Road Manhattan, IL 60442-9012	<b>SE 1/16/1998</b> <b>AUT-HBS</b>	<b>Richard W. Bonds</b> <b>Principal</b> Ductile Iron Pipe Research Association 245 Riverchase Pkwy East, Suite O Birmingham, AL 35244	<b>M 10/10/1997</b> <b>AUT-HBS</b>
<b>Samuel S. Dannaway</b> <b>Principal</b> S. S. Dannaway Associates, Inc. 720 Iwilei Road, Suite 412 Honolulu, HI 96817-5316	<b>SE 4/17/1998</b> <b>AUT-HBS</b>	<b>Christopher I. Deneff</b> <b>Principal</b> FM Global 270 Central Avenue PO Box 7500 Johnston, RI 02919	<b>I 9/30/2004</b> <b>AUT-HBS</b>
<b>John Deutsch</b> <b>Principal</b> City of Brea Fire Department 1 Civic Center Drive Brea, CA 92821	<b>E 7/26/2007</b> <b>AUT-HBS</b>	<b>Daniel C. Duggan</b> <b>Principal</b> Fire Sprinkler Design 1318 Colony Way Court Chesterfield, MO 63017	<b>M 10/23/2003</b> <b>AUT-HBS</b>
<b>Thomas J. Forsythe</b> <b>Principal</b> Hughes Associates, Inc. 2551 San Ramon Valley Blvd., Suite 209 San Ramon, CA 94583 <b>Alternate: Michael J. Madden</b>	<b>SE 1/16/1998</b> <b>AUT-HBS</b>	<b>John D. Gillengerten</b> <b>Principal</b> State of California Office of Health Planning & Development 1600 9th Street, Room 420 Sacramento, CA 95814 <b>Building Seismic Safety Council/Code Resource Support Committee</b>	<b>E 7/14/2004</b> <b>AUT-HBS</b>
<b>Jeffrey E. Harper</b> <b>Principal</b> The RJA Group, Inc. Rolf Jensen & Associates, Inc. 600 West Fulton Street, 5th Floor Chicago, IL 60661 <b>Alternate: Matthew W. Donahue</b>	<b>SE 11/2/2006</b> <b>AUT-HBS</b>	<b>David J. Jeltos</b> <b>Principal</b> ERICO International Corporation 31700 Solon Road Solon, OH 44139	<b>M 8/9/2011</b> <b>AUT-HBS</b>
<b>Kraig Kirschner</b> <b>Principal</b> AFCON 9600 Klingerman Street PO Box 3365 El Monte, CA 91733	<b>M 10/10/1997</b> <b>AUT-HBS</b>	<b>Alan R. Laguna</b> <b>Principal</b> Merit Sprinkler Company, Inc. 930 Kenner Avenue PO Box 1447 Kenner, LA 70062-1447	<b>IM 10/3/2002</b> <b>AUT-HBS</b>
<b>George E. Laverick</b> <b>Principal</b> Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 <b>Alternate: Emil W. Misichko</b>	<b>RT 4/15/2004</b> <b>AUT-HBS</b>	<b>Philip D. LeGrone</b> <b>Principal</b> Risk Management Solutions, Inc. 4247 Lindawood Drive Nashville, TN 37215	<b>SE 7/12/2001</b> <b>AUT-HBS</b>

# Address List No Phone

8/31/2011  
Matthew J. Klaus  
**AUT-HBS**

## Hanging and Bracing of Water-Based Fire Protection Systems Automatic Sprinkler Systems

<b>Leslie "Chip" L. Lindley, II</b> <b>Principal</b> Lindley Fire Protection Company Inc. 2220 East Via Burton Anaheim, CA 92806	<b>IM 8/9/2011</b> <b>AUT-HBS</b>	<b>Norman J. MacDonald, III</b> <b>Principal</b> FlexHead Industries, Inc. 56 Lowland Street Holliston, MA 01746 <b>Alternate: Robert E. Bachman</b>	<b>M 7/29/2005</b> <b>AUT-HBS</b>
<b>Wayne M. Martin</b> <b>Principal</b> Wayne Martin & Associates Inc. 136 Bardsdale Avenue Oxnard, CA 93035	<b>SE 10/10/1997</b> <b>AUT-HBS</b>	<b>David S. Mowrer</b> <b>Principal</b> Babcock & Wilcox Technical Services, LLC Y-12 National Security Complex PO Box 2009, MS-8107 Oak Ridge, TN 37831-8107 <b>Alternate: J. Scott Mitchell</b>	<b>U 10/10/1997</b> <b>AUT-HBS</b>
<b>Randy R. Nelson</b> <b>Principal</b> VFS Fire and Security Services 1011 East Lacy Avenue Anaheim, CA 92805 <b>American Fire Sprinkler Association</b> Installer/Maintainer <b>Alternate: Charles W. Bamford</b>	<b>IM 10/10/1997</b> <b>AUT-HBS</b>	<b>Marco R. Nieraeth</b> <b>Principal</b> XL Global Asset Protection Services 5641 Pepperwood Avenue Lakewood, CA 90712 <b>Alternate: Todd A. Dillon</b>	<b>I 3/2/2010</b> <b>AUT-HBS</b>
<b>Janak B. Patel</b> <b>Principal</b> Savannah River Nuclear Solutions 3704 Clark Crossing Martinez, GA 30907	<b>U 10/10/1997</b> <b>AUT-HBS</b>	<b>Michael A. Rothmier</b> <b>Principal</b> UA Joint Apprenticeship Committee Local 669 9501 Elmhurst Lane "A" Highlands Ranch, CO 80129 <b>United Assn. of Journeymen &amp; Apprentices of the Plumbing &amp; Pipe Fitting Industry</b> <b>Alternate: Charles W. Ketner</b>	<b>L 4/17/1998</b> <b>AUT-HBS</b>
<b>Peter T. Schwab</b> <b>Principal</b> Wayne Automatic Fire Sprinklers, Inc. 222 Capitol Court Ocoee, FL 34761-3033	<b>IM 3/15/2007</b> <b>AUT-HBS</b>	<b>Zeljko Sucevic</b> <b>Principal</b> Vipond Fire Protection 6380 Vipond Drive Mississauga, ON L5T 1A1 Canada <b>Canadian Automatic Sprinkler Association</b>	<b>IM 11/2/2006</b> <b>AUT-HBS</b>
<b>James Tauby</b> <b>Principal</b> Mason Industries, Inc. 350 Rabro Drive Hauppauge, NY 11788	<b>M 10/10/1997</b> <b>AUT-HBS</b>	<b>Jack W. Thacker</b> <b>Principal</b> Allan Automatic Sprinkler Corp. of So. California 3233 Enterprise Street Brea, CA 92821 <b>National Fire Sprinkler Association</b> Contractor <b>Alternate: Ronald N. Webb</b>	<b>IM 10/10/1997</b> <b>AUT-HBS</b>

# Address List No Phone

8/31/2011  
Matthew J. Klaus  
AUT-HBS

## Hanging and Bracing of Water-Based Fire Protection Systems Automatic Sprinkler Systems

<b>Glenn E. Thompson</b> <b>Principal</b> Liberty Mutual Property 2959 Bighorn Drive Corona, CA 92881-8770 <b>Property Casualty Insurers Association of America</b> <b>Alternate: Donald L. Dutra</b>	<b>I 10/27/2005</b> <b>AUT-HBS</b>	<b>Victoria B. Valentine</b> <b>Principal</b> National Fire Sprinkler Association, Inc. 40 Jon Barrett Road Patterson, NY 12563 <b>National Fire Sprinkler Association</b> Design Technician <b>Alternate: Sheldon Dacus</b>	<b>M 4/3/2003</b> <b>AUT-HBS</b>
<b>George Von Gnatensky</b> <b>Principal</b> Tolco 1375 Sampson Avenue Corona, CA 92879-1748 <b>National Fire Sprinkler Association</b> Manufacturer <b>Alternate: Joseph Normandeau</b>	<b>M 10/10/1997</b> <b>AUT-HBS</b>	<b>Thomas G. Wellen</b> <b>Principal</b> American Fire Sprinkler Association, Inc. 12750 Merit Drive, Suite 350 Dallas, TX 75251 <b>American Fire Sprinkler Association</b> Design Technician <b>Alternate: Kenneth W. Wagoner</b>	<b>IM 7/28/2006</b> <b>AUT-HBS</b>
<b>Robert E. Bachman</b> <b>Alternate</b> Robert E. Bachman, Consulting Structural Engineer 25152 La Estrada Drive Laguna Niguel, CA 92677 <b>FlexHead Industries, Inc.</b> <b>Principal: Norman J. MacDonald, III</b>	<b>M 11/2/2006</b> <b>AUT-HBS</b>	<b>Charles W. Bamford</b> <b>Alternate</b> Bamford Inc. 9615 NE 201st Street Bothell, WA 98011 <b>American Fire Sprinkler Association</b> Installer/Maintainer <b>Principal: Randy R. Nelson</b>	<b>IM 1/18/2001</b> <b>AUT-HBS</b>
<b>Sheldon Dacus</b> <b>Alternate</b> Security Fire Protection Company 4495 Mendenhall Road Memphis, TN 38141 <b>National Fire Sprinkler Association</b> Design Technician <b>Principal: Victoria B. Valentine</b>	<b>M 10/10/1997</b> <b>AUT-HBS</b>	<b>Todd A. Dillon</b> <b>Alternate</b> XL Global Asset Protection Services 1620 Winton Avenue Lakewood, OH 44107 <b>Principal: Marco R. Nieraeth</b>	<b>I 10/23/2003</b> <b>AUT-HBS</b>
<b>Matthew W. Donahue</b> <b>Alternate</b> The RJA Group, Inc. Rolf Jensen & Associates, Inc. 1 Pointe Drive, Suite 210 Brea, CA 92821 <b>Principal: Jeffrey E. Harper</b>	<b>SE 3/4/2008</b> <b>AUT-HBS</b>	<b>Donald L. Dutra</b> <b>Alternate</b> Liberty Mutual Insurance 470 Cola Ballena, Unit A Alameda, CA 94501-3676 <b>Property Casualty Insurers Association of America</b> <b>Principal: Glenn E. Thompson</b>	<b>I 10/28/2008</b> <b>AUT-HBS</b>

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8/31/2011  
Matthew J. Klaus  
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## Hanging and Bracing of Water-Based Fire Protection Systems Automatic Sprinkler Systems

<b>Charles W. Ketner</b> <b>Alternate</b> National Automatic Sprinkler Fitters LU 669 Joint Apprenticeship & Training Committee 7050 Oakland Mills Road Columbia, MD 20732 <b>United Assn. of Journeymen &amp; Apprentices of the Plumbing &amp; Pipe Fitting Industry</b> <b>Principal: Michael A. Rothmier</b>	<b>L 1/10/2008</b> <b>AUT-HBS</b>	<b>Michael J. Madden</b> <b>Alternate</b> Hughes Associates, Inc. 6 Centerpointe Drive, Suite 760 La Palma, CA 90623 <b>Principal: Thomas J. Forsythe</b>	<b>SE 4/17/2002</b> <b>AUT-HBS</b>
<b>Emil W. Misichko</b> <b>Alternate</b> Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 <b>Principal: George E. Laverick</b>	<b>RT 10/10/1997</b> <b>AUT-HBS</b>	<b>J. Scott Mitchell</b> <b>Alternate</b> B & W Technical Services Pantex PO Box 1241 Panhandle, TX 79068 <b>Principal: David S. Mowrer</b>	<b>U 7/12/2001</b> <b>AUT-HBS</b>
<b>Joseph Normandeau</b> <b>Alternate</b> Tyco/SimplexGrinnell 1701 West Sequoia Avenue Orange, CA 92886 <b>National Fire Sprinkler Association</b> Manufacturer <b>Principal: George Von Gnatensky</b>	<b>M 8/9/2011</b> <b>AUT-HBS</b>	<b>Kenneth W. Wagoner</b> <b>Alternate</b> Parsley Consulting Engineers 350 West 9th Avenue, Suite 206 Escondido, CA 92025-5053 <b>American Fire Sprinkler Association</b> Design Technician <b>Principal: Thomas G. Wellen</b>	<b>IM 10/4/2007</b> <b>AUT-HBS</b>
<b>Ronald N. Webb</b> <b>Alternate</b> S.A. Comunale Company, Inc. 2900 Newpark Drive Barberton, OH 44203 <b>National Fire Sprinkler Association</b> Contractor <b>Principal: Jack W. Thacker</b>	<b>IM 1/14/2005</b> <b>AUT-HBS</b>	<b>Matthew J. Klaus</b> <b>Staff Liaison</b> National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471	<b>12/16/2010</b> <b>AUT-HBS</b>

## **PART 3 – NFPA STAFF LIAISON NOTICE**

## **Note from the Staff Liaison**

Dear Committee Members:

We are very pleased that you will be participating in the processing of the 2013 Edition of NFPA 13. Development of the Standard would not be possible without the participation of volunteers like you.

## **Materials You Will Need to Have for the Committee Meeting**

- Agenda with all attachments
- Public Comments Submitted Under A2012 Cycle
- Committee Officers' Guide (Chairs)
- Roberts' Rules of Order (Chairs – abbreviated version may be found in the Committee Officer's Guide)

## **"Nice to Have" Materials**

- NFPA Annual Directory
- NFPA Manual of Style
- Prepared Committee Comments (If applicable)

## **Preparation**

Prepared actions and statements will clarify your position and provide the committee with a starting point. Prepared actions and statements really help expedite the progress of the meeting.

## **Getting Things Done**

### ***Comments***

Only one posting of comments will be made; it will be arranged in section/order and will be pre-numbered. This will be posted to the NFPA e-committee website and also attached to this Agenda Package. If you have trouble accessing the website please contact Joanne Goyette at [jgoyette@nfpa.org](mailto:jgoyette@nfpa.org). Please bring the comments to the committee meeting.

The processing schedule to be followed by the committee is outlined in the schedule in this package. As the schedule is very tight, no extensions of the deadline for receipt of completed ballots or extensions of the period to change vote will be possible.

It is therefore suggested that those of you who must consult with others regarding your ballot do so based on the material passed out at the meeting, and your meeting notes. Do not wait for receipt of the ballot materials from NFPA.

## ***Regulations and Operating Procedures***

All actions at, and following, the committee meetings will be governed in accordance with the NFPA Regulations Governing Committee Projects. The latest Regulations (as of this printing) appear on pages 10-28 of the 2010 NFPA Directory.

All committee actions will be in accordance with the NFPA Regulations Governing Committee Projects. The style of NFPA 13 will comply with the Manual of Style for NFPA Technical Committee Documents. Failure to comply with these rules could result in challenges to the standards-making process. A successful challenge on procedural grounds

could prevent or delay publication of NFPA 13. Consequently, committees must follow the regulations and procedures.

## **Processing Comments**

### **Committee Actions**

The following are the actions permitted by the Regulations Governing Committee Projects for disposition of comments.

#### ***Accept***

The committee accepts the comment exactly as written. Only editorial changes such as paragraph and section numbering, and corrections to spelling, capitalization, and hyphenation may be made.

If a comment is accepted without a change of any kind, except for editorial changes, the committee can simply indicate acceptance. The committee should add a committee statement explaining the action if, for example the committee does not agree with all of the substantiation or supporting data or has a number of different reasons for acceptance than those stated in the substantiation or supporting data. The absence of such a statement could mislead the reader by giving the impression that the committee agreed with all of the substantiation for the comment.

#### ***Reject***

The comment is rejected by the committee. If the principle or intent of the comment is acceptable in whole or in part, the comment should not be rejected, it should be accepted in principle or accepted in principle in part. A complete reason for rejection of the comment must be supplied in the committee statement.

#### ***Accept in Principle***

Accept the comment with a change in wording. The committee action must indicate specifically what action was taken to revise the proposed wording, and where the wording being revised is located (i.e., in the proposed wording or in the document). If the details are in the action on another comment, the committee action may simply indicate "Accept in Principle" but reference should then be made in the committee statement to the specific comment detailing the action.

#### ***Accept in Part***

If part of a comment is accepted without change and the remainder is rejected, the comment should be "Accepted in Part." The committee action must indicate what part was accepted and what part was rejected and the committee statement must indicate its reasons for rejecting that portion.

#### ***Accept in Principle in Part***

This is a combination of "Accept in Principle" and "Accept in Part" as shown above.

### **Committee Statements**

Any comment that is "Accepted in Principle", "Accepted in Part", "Accepted in Principle in Part" or "Rejected" must include a committee statement, preferably technical in nature that provides the reasons for the action.

References to the requirements of other documents as a reason for rejection should be to the specific sections of the document including the requirements. If there is more than one such section, the reference should include a least one, identified as an example.

It is a violation of the regulations for a committee to reject a comment simply because it accepted a different comment on the same subject. Reference in the committee statement to another committee action is inappropriate unless the referenced comment contains all of the applicable technical justification for the action.

If the rejection or change was for the same reason that another comment was rejected or changed, the committee statement may refer to that comment giving the same reason for rejection or change. Please verify that cross references to other comments are correct.

The committee statement should not refer to another committee statement which, in turn, refers to some other committee statement. There may be a situation where the committee will want to refer to two, three, or more committee statements if they are all appropriate.

When the committee develops a committee action for a comment that is accepted in principle, the rationale must indicate why the wording submitted was not accepted. This reason should be technical in nature, unless the committee has simply rewritten the submitter's text, in which case the committee can state that the proposed wording should meet the submitter's intent.

The committee statement on a comment that is accepted in part should indicate specifically why that part of the comment was not accepted.

## **Easy Procedures for Handling a Motion**

NFPA Committee Meetings are conducted in accordance with Roberts' Rules of Order. In order for a comment to be discussed, a motion must be made. A simplified procedure for discussion of motions is as follows:

### ***Member***

- Member Addresses the Chair
- Receives Recognition from the Chair
- Introduces the Motion
- (Another Member) Seconds the Motion.

### ***Chair (Presiding Officer)***

- States the Motion
- Calls for Discussion
- Takes the vote
- Announces the Result of the Vote

It is imperative that you review the comments before the meeting and develop proposed actions and statements. These prepared actions and statements will clarify your position and provide the committee with a starting point. Prepared actions and statements really help expedite the progress of the meeting.

## **Balloting Dos and Don'ts**

Either fax or mail your ballot - Please do not do both. Don't return the entire package; just return the appropriate ballot page(s) and explanation of votes.

## **Alternate Members**

At the end of each code cycle, the Standards Council reviews records of all members regarding their participation in the standards-making process. Therefore, it is important for alternate members to remember that return of ballots is expected, even though they know that their principal member will be attending meetings and returning their ballots.

## **General Procedures for Meetings**

- Use of tape recorders or other means capable of producing verbatim transcriptions of any NFPA Committee Meeting is not permitted.
- Attendance at all NFPA Committee Meetings is open.
- All guests must sign in and identify their affiliation.
- Participation in NFPA Committee Meetings is generally limited to committee members and NFPA staff. Participation by guests is limited to individuals, who have previously requested of the chair time to address the committee on a particular item, or individuals who wish to speak regarding public proposals or comments that they submitted.
- The chairman reserves the right to limit the amount of time available for any presentation.
- No interviews will be allowed in the meeting room at any time, including breaks.
- All attendees are reminded that formal votes of committee members will be secured by letter ballot. Voting at this meeting is used to establish a sense of agreement, but only the results of the formal letter ballot will determine the official position of the committee on any comment.
- Note to Special Experts: Particular attention is called to Section 3.3(e) of the NFPA Guide for the Conduct of Participants in the NFPA Codes and Standards Development Process in the NFPA Directory that directs committee members to declare their interest representation if it is other than their official designation as shown on the committee roster, such as when a special expert is retained and represents another interest category on a particular subject. If such a situation exists on a specific issue or issues, the committee member shall declare those interests to the committee, and refrain from voting on any proposal, comment, or other matter relating to those issues.
- Smoking is not permitted at NFPA Committee Meetings

## **PART 4 – A2012 ROP MEETING MINUTES**

**TC on Hanging and Bracing Systems  
ROP Meeting  
Savannah Riverfront Marriott  
100 General McIntosh Blvd  
Savannah, GA  
February 2-3, 2011**

Attendees:

See attached sign-in sheet.

1. George Laverick (Acting Chair) called the meeting to order at 8:00 am and began introductions.
2. The A2009 ROC minutes were approved.
3. Matt Klaus gave the staff report and a presentation on the meeting procedures. He also reviewed the dates of the cycle.
4. George Laverick (Acting Chair) then discussed the logistics for the meeting and his process to complete the ROP.
5. The committee then processed the proposals. See the ROP for the official actions on the proposals.
6. New Business: The TC discussed the issues of listed anchors in seismic zones and the status of other codes/standards on the issue. The TC developed a Task Group led by Victoria Valentine to address this issue prior to the ROC meeting.
7. The ROC meeting is scheduled for September 28, 2011 in Newport Beach, CA
8. Meeting adjourned at 4:30 pm.

Sign-In Sheet  
Hanging and Bracing of Water-Based Fire Protection Systems

NFPA 13 AUT-HBS (A12) ROP Meeting  
Marriott Savannah Riverfront Hotel, Savannah, GA  
February 2-3, 2011

Name	Office	Organization	Signature	Staying at hotel					Days	
				1	2	3	4	5		
Bonds, Richard	Principal	Ductile Iron Pipe Research Association								
Braga, Antonio	Principal	FM Global								
Dannaway, Samuel	Principal	S. S. Dannaway Associates, Inc.		X						
Deutsch, John	Principal	City of Brea Fire Department		X						
Duggan, Daniel	Principal	Fire Sprinkler Design								
Forsythe, Thomas	Principal	Hughes Associates, Inc.								
Gillengerten, John	Principal	Building Seismic Safety Council/Code								
Harper, Jeffrey	Principal	The RJA Group, Inc.		X						
Kirschner, Craig	Principal	AFCON								
Laguna, Alan	Principal	Merit Sprinkler Company, Inc.		X						
Laverick, George	Principal	Underwriters Laboratories Inc.		X						
MacDonald, Norman	Principal	FlexHead Industries, Inc.								
Martin, Wayne	Principal	Wayne Martin & Associates Inc.								
Mowrer, David	Principal	Babcock & Wilcox Technical Services, LLC		X						
Nelson, Randy	Principal	American Fire Sprinkler Association		X						
Nieraeth, Marco	Principal	XL Global Asset Protection Services		X						
Patel, Janak	Principal	Savannah River Nuclear Solutions								
Rottmier, Michael	Principal	United Assn. of Journeymen & Apprentices		X						
Schwab, Peter	Principal	Wayne Automatic Fire Sprinklers, Inc.								
Sucevic, Zeljko	Principal	Canadian Automatic Sprinkler Association								
Tauby, James	Principal	Mason Industries, Inc.								

January 19, 2011

NP Recorded 4-6-11  
Chargo & C. Peterson 4-6-11

Sign-In Sheet  
Hanging and Bracing of Water-Based Fire Protection Systems

NFPA 13 AUT-HBS (A12) ROP Meeting  
Marriott Savannah Riverfront Hotel, Savannah, GA  
February 2-3, 2011

Name	Office	Organization	Signature	Staying at hotel					Days									
				1	2	3	4	5	1	2	3	4	5					
Thacker, Jack	Principal	National Fire Sprinkler Association																
Thompson, Glenn	Principal	Property Casualty Insurers Association of																
Valentine, Victoria	Principal	National Fire Sprinkler Association	<i>Victoria Bralton</i>	yes						X	X	X						
Wellen, Thomas	Principal	American Fire Sprinkler Association	<i>Thomas Egghill</i>	yes						X	X	X						
Von Gnatensky, George	Voting Alternate	National Fire Sprinkler Association	<i>George Gnatensky</i>	yes						X	X	X						
Bachman, Robert	Alternate	FlexHead Industries, Inc.																
Barnford, Charles	Alternate	American Fire Sprinkler Association	<i>Charles Barnford</i>	yes						X								
Dacus, Sheldon	Alternate	National Fire Sprinkler Association	<i>Sheldon Dacus</i>	yes						X	X							
Deneff, Christopher	Alternate	FM Global	<i>Chris Deneff</i>	yes								X						
Dillon, Todd	Alternate	XL Global Asset Protection Services																
Donahue, Matthew	Alternate	The RJA Group, Inc.																
Dutra, Donald	Alternate	Property Casualty Insurers Association of																
Ketner, Charles	Alternate	United Assn. of Journeymen & Apprentices																
Madden, Michael	Alternate	Hughes Associates, Inc.																
Misichko, Emil	Alternate	Underwriters Laboratories Inc.																
Mitchell, J.	Alternate	B & W Technical Services Pantex																
Wagoner, Kenneth	Alternate	American Fire Sprinkler Association	<i>Kenneth Wagoner</i>	yes						X	X	X						
Webb, Ronald	Alternate	National Fire Sprinkler Association	<i>Ronald Webb</i>	yes								X						
Klaus, Matthew	Staff Liaison	National Fire Protection Association	<i>Matthew Klaus</i>															



## **PART 5 – A2012 REVISION CYCLE DATES**

# 2012 Annual Revision Cycle

	<b>PROCESS STAGE</b>	<b>PROCESS STEP</b>	<b>DATES FOR TC</b>	<b>DATES FOR TCC</b>
1	PRELIMINARY	1.0 Notification of intent to enter cycle	7/9/10	7/9/10
2	REPORT ON PROPOSALS (ROP)	2.1 Proposal closing date	11/23/10*	11/23/10*
		2.2 Final date for ROP meeting	2/25/11	2/24/11
		2.3 Final date for mailing TC ballots	3/18/11	2/18/11
		2.4 Receipt of (TC) ballots by staff liaison	4/22/11	3/11/11
		2.5 Receipt of TC recirculation ballots	5/6/11	3/18/11
		2.6 Final date for TCC meeting		4/15/11
		2.7 Final date for mailing TCC ballots		4/22/11
		2.8 Receipt of TCC ballots		5/13/11
		2.9 Receipt of TCC recirculation ballots		5/20/11
		2.10 Final copy (w/ ballot statements) to Secretary, Standards Council	5/13/11	5/27/11
		2.11 Completion of Reports	5/20/11	6/3/11
		2.12 ROP Published and Posted	6/24/11	6/24/11
3	REPORT ON COMMENTS (ROC)	3.1 Comment closing date	8/30/11	8/30/11
		3.2 Final date for ROC meeting	11/4/11	10/7/11
		3.3 Final date for mailing TC ballots	11/18/11	10/21/11
		3.4 Receipt of (TC) ballots by staff liaison	12/2/11	11/11/11
		3.5 Receipt of TC recirculation ballots	12/9/11	11/18/11
		3.6 Final date for TCC meeting		12/16/11
		3.7 Final date for mailing TCC ballots		12/23/11
		3.8 Receipt of TCC ballots		1/13/12
		3.9 Receipt of TCC recirculation ballots		1/20/12
		3.10 Final copy (w/ ballot statements) to Secretary, Standards Council	12/23/11	1/27/12
		3.11 Completion of Reports	1/13/12	2/3/12
		3.12 ROC Published and Posted	2/24/12	2/24/12
4	TECH SESSION PREPARATION & ISSUANCE OF CONSENT DOCUMENTS	4.1 Notice of Intent to Make a Motion (NITMAM) Closing Date	4/6/12	4/6/12
		4.2 Posting of Filed NITMAM	5/4/12	5/4/12
		4.3 Council Issuance Date for Consent Documents	5/29/12	5/29/12
		4.4 Appeal Closing Date for Consent Documents	6/13/12	6/13/12
5	TECHNICAL SESSION	5.0 Association Meeting for Documents with Certified Amending Motions	6/3-7/12	6/3-7/12
6	APPEALS & ISSUANCE OF DOCUMENTS W/CAMS	6.1 Appeal closing date for Documents with Certified Amending Motions	6/27/12	6/27/12
		6.2 Council issuance for Documents with Certified Amending Motions	7/26/12	7/26/12

\* Proposal Closing Dates may vary according to documents and schedules for Revision Cycles may change. Please check the NFPA website ([www.nfpa.org](http://www.nfpa.org)) for the most up-to-date information on proposals closing dates and schedules.

**PART 6 – NFPA 13 ANNUAL 2012 MASTER  
SCHEDULE**

**Technical Committees on Automatic Sprinkler Systems**  
**Annual 2012 Revision Cycle Master Schedule**

1. **Proposal Closing Date** - October 1, 2010
2. **PreROP Meetings:** Quincy Marriott, Quincy, MA
  - a. December 1-2, 2010 – Sprinkler System Installation (SSI)
  - b. December 1-2, 2010 – Sprinkler System Discharge (SSD)
  - c. December 2-3, 2010 – Residential Sprinkler Systems (RSS)
3. **ROP Meetings:** Savannah Riverfront Marriott, Savannah, GA
  - a. February 2-3, 2011 - Hanging and Bracing (HBS)
  - b. February 4, 2011 - Private Water Supply (PRI)
  - c. February 7-9, 2011 - Sprinkler System Installation (SSI)
  - d. February 10-11, 2011 - Sprinkler System Discharge (SSD)
  - e. February 14-15, 2011 - Residential Sprinkler Systems (RSS)
4. **TCC-ROP Meeting:** Savannah Riverfront Marriott, Savannah, GA, March 29-30, 2011
5. **ROC Meeting:** Newport Beach Marriott, Newport Beach, CA
  - a. September 19-20, 2011- Sprinkler System Installation (SSI)
  - b. September 22-23, 2011 - Sprinkler System Discharge (SSD)
  - c. September 26-27, 2011 - Residential Sprinkler Systems (RSS)
  - d. September 28, 2011 - Hanging and Bracing (HBS)
  - e. September 29, 2011 - Private Water Supply (PRI)
6. **TCC-ROC Meeting:** Conference Call - TBD

**PART 7 – HBS TASK GROUP ORGANIZATION  
CHART**



**PART 8 – ANNUAL 2012 PUBLIC COMMENTS  
AUT-HBS**

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13- Log #319 AUT-HBS Final Action:  
(9.1.1.2(6), 9.3.5.1.4, 9.3.5.1.5, A.9.1.1.2(6), A.9.3.5.1.4, and A.9.3.5.1.5)

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Submitter: John Deutsch, City of Brea Fire Department

Comment on Proposal No: 13-313

Recommendation: Add text to read as follows:

9.1.1.2.(6)\* Sprinkler pipe and other equipment shall be permitted to be supported from a shared support structure provided it is engineered in accordance with section 9.1.1.2 and all pipe and equipment is included when applying the requirements of section 9.1.1.2 (1). The design forces for shared components shall be determined in accordance with ASCE 7 using an Importance Factor  $I_p = 1.5$ .

A.9.1.1.2.(6) A shared support structure may be in the form of a rack structure or a trapeze assembly or pipe stand or other similar assembly. It is not the intent of this section for a building to be considered a shared support structure. It is the intent of this section to require that a shared support structure be engineered to support the added load of five times the water filled pipe plus a minimum of 250 lb (114 kg) applied at the point of hanging of the sprinkler system. Supports for all other equipment shall be designed with an importance factor of 1.5. Consideration shall be given to not support multiple systems on a shared support structure in which the systems are incompatible with the fire sprinkler system based on vibration, thermal expansion and contraction or other factors.

9.3.5.1.4\* A shared support structure shall be permitted to support both the dead loads addressed in 9.1.1.2.(6) and the seismic loads addressed in 9.3.5.6. When a shared support structure is used to support dead and seismic loads, the structure shall be designed to support the dead and seismic loads for all pipe and equipment on the structure.

A.9.3.5.1.4 A shared support structure may be used to provide both support as defined in section 9.1.1.2.(6) and provide resistance to seismic forces. When a structure is used for both support and seismic forces the structure must be engineered to resist the seismic force for all of the equipment on the structure. The shared support structure must be engineered for a load in which the zone of influence includes the water filled sprinkler pipe and all of the other fluid filled mechanical equipment attached to the shared structure.

9.3.5.1.5\* If a shared support structure is used to support sprinkler pipe and other mechanical equipment as per 9.1.1.2.(6) but that same structure does not provide seismic resistance as described in 9.3.5.1.4 then the following must be met. The sprinkler pipe shall be braced using the method in section 9.3.5.6 with the zone of influence including the water filled sprinkler pipe and all of the other fluid filled mechanical equipment attached to the shared support structure. The sprinkler bracing shall be designed for seismic load of everything attached to the shared support structure and not just the sprinkler pipe. The sprinkler sway bracing attachment shall be connected to the same building element as the common support structure is attached to.

A.9.3.5.1.5 Where a shared support structure is used to support sprinkler system pipe and all other mechanical equipment as per 9.1.1.2.(6) but that same structure does not provide seismic resistance as described in 9.3.5.1.4 then the sprinkler system pipe would be braced using the method in section 9.3.5 with the zone of influence including the water filled sprinkler system pipe and all of the other equipment supported by the structure. The seismic load applied to the brace includes all equipment attached to the shared support structure and not just the sprinkler pipe. It is the intent of this section to avoid any incompatibility of displacements between the shared support structure and the sprinkler seismic bracing.

**Substantiation:** I am submitting these comments on behalf of a NFPA 13 AUT-HBS task group consisting of Robert Bachman, Kraig Kirschner, Janak Patel, John Gillengerten, J. Scott Mitchell, Zeljko Sucevic and myself. The initial proposal was helpful in bringing light to the fact that the concept of a shared support structure was not adequately address in NFPA 13. The task group was established to address the concept of a shared support structure. These 6 new sections are the result of the work of the task group.

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13- Log #351 AUT-HBS  
(Table 9.1.1.6.1(a))

Final Action:

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Submitter: Victoria B. Valentine, National Fire Sprinkler Association, Inc.

Comment on Proposal No: 13-319

Recommendation: Modify Table 9.1.1.6.1(a):

\*\*\*INSERT TABLE 9.1.1.6.1(A) HERE\*\*\*

**Substantiation:** The expansion of this table was requested by the Committee during the ROP meetings. The supported pipe has been : increased to nominal 12-inch diameter. The spans have been increased up to 20 feet using 0.5-foot increments. This is more than the standard hanger spacings allowed by the standard, but the stresses and deflections remain low with the anticipated load of the system piping. For spans more than 20 feet. the trapeze should be looked at further by an expert as many scenarios would then involve a joint in the trapeze which could create the need for additional analysis.

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13- Log #48 AUT-HBS  
(9.1.1.6.7 and 9.1.1.6.8)

Final Action:

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Submitter: Thomas G. Wellen, American Fire Sprinkler Association, Inc.

Comment on Proposal No: 13-322

Recommendation: Revise text to read as follows:

Accept proposal 13-322.

9.1.1.6.7 Holes for bolts or rods shall not exceed 1/16 in. (1.6 mm) greater than the diameter of the bolt.

9.1.1.6.8 Bolts or rods shall be provided with a flat washer and nut.

**Substantiation:** The committee statement is flawed. "1/16 in. is too restrictive for rods based on actual field variations. It is common practice to use slotted holes for connecting rods to the trapeze member." The standard has referenced drilling holes for bolting for some time and provided the 1/16 in. larger dimension for the hole. It is not common practice to use slotted holes for connecting rods to the tapeze member. Contractors drill holes, but they do not machine slots into structural members. Machining holes is outside the scope of this standard. There are many factors to take into consideration such as the placement of the slot and the length of the slot. The slot could be placed too close to the edge of the structural member and the slot could be made too long. Each of those factors would affect the ability of that structural member to support a load. These tasks should be evaluated and stamped by a structural engineer since it would no longer fall under a generic structural member. The section modulus numbers from the standard should not be applied to the modified member. The statement by the committee in proposal 13-322 conflicts with a statement made in Proposal 13-318 Log #17 that stated, "The section modulus for strut can vary from one manufacturer to the next. It is proprietary information and should be provided from the manufacturer to the user." As such, slots can vary from one fabricator to the next and this means contractors are buying a specialty product to where appropriate documentation should be provided.

Nominal Diameter of Pipe Being Supported - Schedule 10 Steel

Span (ft)	1	1.25	1.5	2	2.5	3	3.5	4	5	6	8	10	12
1.5	0.08	0.08	0.09	0.09	0.10	0.11	0.12	0.13	0.15	0.18	0.26	0.34	0.50
2.0	0.11	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.20	0.24	0.34	0.45	0.66
2.5	0.14	0.14	0.15	0.16	0.17	0.18	0.20	0.21	0.25	0.30	0.43	0.56	0.83
3.0	0.16	0.17	0.18	0.19	0.20	0.22	0.24	0.26	0.31	0.36	0.51	0.67	0.99
3.5	0.19	0.20	0.21	0.22	0.24	0.26	0.28	0.30	0.36	0.42	0.60	0.78	1.16
4.0	0.22	0.22	0.24	0.25	0.27	0.30	0.32	0.34	0.41	0.48	0.68	0.89	1.32
4.5	0.24	0.25	0.27	0.28	0.30	0.33	0.36	0.38	0.46	0.54	0.77	1.01	1.49
5.0	0.27	0.28	0.30	0.31	0.34	0.37	0.40	0.43	0.51	0.60	0.85	1.12	1.65
5.5	0.30	0.31	0.33	0.34	0.37	0.41	0.44	0.47	0.56	0.66	0.94	1.23	1.82
6.0	0.33	0.34	0.35	0.38	0.41	0.44	0.48	0.51	0.61	0.71	1.02	1.34	1.98
6.5	0.35	0.36	0.38	0.41	0.44	0.48	0.52	0.56	0.66	0.77	1.11	1.45	2.15
7.0	0.38	0.39	0.41	0.44	0.47	0.52	0.56	0.60	0.71	0.83	1.19	1.56	2.31
7.5	0.41	0.42	0.44	0.47	0.51	0.55	0.60	0.64	0.76	0.89	1.28	1.68	2.48
8.0	0.43	0.45	0.47	0.50	0.54	0.59	0.63	0.68	0.82	0.95	1.36	1.79	2.65
8.5	0.46	0.48	0.50	0.53	0.58	0.63	0.67	0.73	0.87	1.01	1.45	1.90	2.81
9.0	0.49	0.50	0.53	0.56	0.61	0.66	0.71	0.77	0.92	1.07	1.53	2.01	2.98
9.5	0.52	0.53	0.56	0.60	0.64	0.70	0.75	0.81	0.97	1.13	1.62	2.12	3.14
10.0	0.54	0.56	0.59	0.63	0.68	0.74	0.79	0.85	1.02	1.19	1.70	2.23	3.31
10.5	0.57	0.59	0.62	0.66	0.71	0.78	0.83	0.90	1.07	1.25	1.79	2.35	3.47
11.0	0.60	0.62	0.65	0.69	0.74	0.81	0.87	0.94	1.12	1.31	1.87	2.46	3.64
11.5	0.63	0.64	0.68	0.72	0.78	0.85	0.91	0.98	1.17	1.37	1.96	2.57	3.80
12.0	0.65	0.67	0.71	0.75	0.81	0.89	0.95	1.02	1.22	1.43	2.04	2.68	3.97
12.5	0.68	0.70	0.74	0.78	0.85	0.92	0.99	1.07	1.27	1.49	2.13	2.79	4.13
13.0	0.71	0.73	0.77	0.81	0.88	0.96	1.03	1.11	1.33	1.55	2.21	2.90	4.30
13.5	0.73	0.76	0.80	0.85	0.91	1.00	1.07	1.15	1.38	1.61	2.30	3.02	4.46
14.0	0.76	0.78	0.83	0.88	0.95	1.03	1.11	1.20	1.43	1.67	2.38	3.13	4.63
14.5	0.79	0.81	0.86	0.91	0.98	1.07	1.15	1.24	1.48	1.73	2.47	3.24	4.79
15.0	0.82	0.84	0.89	0.94	1.02	1.11	1.19	1.28	1.53	1.79	2.56	3.35	4.96
15.5	0.84	0.87	0.92	0.97	1.05	1.14	1.23	1.32	1.58	1.85	2.64	3.46	5.13
16.0	0.87	0.90	0.95	1.00	1.08	1.18	1.27	1.37	1.63	1.91	2.73	3.58	5.29
16.5	0.90	0.92	0.98	1.03	1.12	1.22	1.31	1.41	1.68	1.97	2.81	3.69	5.46
17.0	0.92	0.95	1.01	1.07	1.15	1.26	1.35	1.45	1.73	2.03	2.90	3.80	5.62
17.5	0.95	0.98	1.04	1.10	1.18	1.29	1.39	1.49	1.78	2.09	2.98	3.91	5.79
18.0	0.98	1.01	1.06	1.13	1.22	1.33	1.43	1.54	1.84	2.14	3.07	4.02	5.95
18.5	1.01	1.04	1.09	1.16	1.25	1.37	1.47	1.58	1.89	2.20	3.15	4.13	6.12
19.0	1.03	1.06	1.12	1.19	1.29	1.40	1.51	1.62	1.94	2.26	3.24	4.25	6.28
19.5	1.06	1.09	1.15	1.22	1.32	1.44	1.55	1.67	1.99	2.32	3.32	4.36	6.45
20.0	1.09	1.12	1.18	1.25	1.35	1.48	1.59	1.71	2.04	2.38	3.41	4.47	6.61

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Nominal Diameter of Pipe Being Supported - Schedule 40 Steel

Span (ft)	1	1.25	1.5	2	2.5	3	3.5	4	5	6	8	10	12
1.5	0.08	0.09	0.09	0.10	0.11	0.12	0.14	0.15	0.18	0.22	0.30	0.41	0.53
2.0	0.11	0.11	0.12	0.13	0.15	0.16	0.18	0.20	0.24	0.29	0.40	0.55	0.71
2.5	0.14	0.14	0.15	0.16	0.18	0.21	0.23	0.25	0.30	0.36	0.50	0.69	0.89
3.0	0.16	0.17	0.18	0.20	0.22	0.25	0.27	0.30	0.36	0.43	0.60	0.82	1.07
3.5	0.19	0.20	0.21	0.23	0.26	0.29	0.32	0.35	0.42	0.51	0.70	0.96	1.25
4.0	0.22	0.23	0.24	0.26	0.29	0.33	0.36	0.40	0.48	0.58	0.80	1.10	1.42
4.5	0.25	0.26	0.27	0.29	0.33	0.37	0.41	0.45	0.54	0.65	0.90	1.23	1.60
5.0	0.27	0.29	0.30	0.33	0.37	0.41	0.45	0.49	0.60	0.72	1.00	1.37	1.78
5.5	0.30	0.31	0.33	0.36	0.40	0.45	0.50	0.54	0.66	0.79	1.10	1.51	1.96
6.0	0.33	0.34	0.36	0.39	0.44	0.49	0.54	0.59	0.72	0.87	1.20	1.64	2.14
6.5	0.36	0.37	0.40	0.42	0.48	0.54	0.59	0.64	0.78	0.94	1.31	1.78	2.32
7.0	0.38	0.40	0.43	0.46	0.52	0.58	0.63	0.69	0.84	1.01	1.41	1.92	2.49
7.5	0.41	0.43	0.46	0.49	0.55	0.62	0.68	0.74	0.90	1.08	1.51	2.06	2.67
8.0	0.44	0.46	0.49	0.52	0.59	0.66	0.72	0.79	0.96	1.16	1.61	2.19	2.85
8.5	0.47	0.48	0.52	0.56	0.63	0.70	0.77	0.84	1.02	1.23	1.71	2.33	3.03
9.0	0.49	0.51	0.55	0.59	0.66	0.74	0.81	0.89	1.08	1.30	1.81	2.47	3.21
9.5	0.52	0.54	0.58	0.62	0.70	0.78	0.86	0.94	1.14	1.37	1.91	2.60	3.38
10.0	0.55	0.57	0.61	0.65	0.74	0.82	0.90	0.99	1.20	1.45	2.01	2.74	3.56
10.5	0.58	0.60	0.64	0.69	0.77	0.86	0.95	1.04	1.26	1.52	2.11	2.88	3.74
11.0	0.60	0.63	0.67	0.72	0.81	0.91	0.99	1.09	1.32	1.59	2.21	3.01	3.92
11.5	0.63	0.66	0.70	0.75	0.85	0.95	1.04	1.14	1.38	1.66	2.31	3.15	4.10
12.0	0.66	0.68	0.73	0.78	0.88	0.99	1.08	1.19	1.44	1.73	2.41	3.29	4.27
12.5	0.69	0.71	0.76	0.82	0.92	1.03	1.13	1.24	1.50	1.81	2.51	3.43	4.45
13.0	0.71	0.74	0.79	0.85	0.96	1.07	1.17	1.29	1.56	1.88	2.61	3.56	4.63
13.5	0.74	0.77	0.82	0.88	0.99	1.11	1.22	1.34	1.62	1.95	2.71	3.70	4.81
14.0	0.77	0.80	0.85	0.91	1.03	1.15	1.26	1.39	1.68	2.02	2.81	3.84	4.99
14.5	0.80	0.83	0.88	0.95	1.07	1.19	1.31	1.43	1.74	2.10	2.91	3.97	5.17
15.0	0.82	0.86	0.91	0.98	1.10	1.24	1.35	1.48	1.80	2.17	3.01	4.11	5.34
15.5	0.85	0.88	0.94	1.01	1.14	1.28	1.40	1.53	1.86	2.24	3.11	4.25	5.52
16.0	0.88	0.91	0.97	1.05	1.18	1.32	1.44	1.58	1.92	2.31	3.21	4.39	5.70
16.5	0.91	0.94	1.00	1.08	1.21	1.36	1.49	1.63	1.98	2.38	3.31	4.52	5.88
17.0	0.93	0.97	1.03	1.11	1.25	1.40	1.53	1.68	2.04	2.46	3.41	4.66	6.06
17.5	0.96	1.00	1.06	1.14	1.29	1.44	1.58	1.73	2.10	2.53	3.51	4.80	6.23
18.0	0.99	1.03	1.09	1.18	1.33	1.48	1.62	1.78	2.16	2.60	3.61	4.93	6.41
18.5	1.02	1.05	1.12	1.21	1.36	1.52	1.67	1.83	2.22	2.67	3.71	5.07	6.59
19.0	1.04	1.08	1.16	1.24	1.40	1.56	1.71	1.88	2.28	2.75	3.81	5.21	6.77
19.5	1.07	1.11	1.19	1.27	1.44	1.61	1.76	1.93	2.34	2.82	3.92	5.34	6.95
20.0	1.10	1.14	1.22	1.31	1.47	1.65	1.80	1.98	2.40	2.89	4.02	5.48	7.12

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13- Log #53 AUT-HBS  
(9.1.1.6.7 and 9.1.1.6.8)

Final Action:

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Submitter: Kraig Kirschner, AFCON

Comment on Proposal No: 13-322

Recommendation: Revise text to read as follows:

9.1.1.6.7 Holes for bolts or studs shall....

9.1.1.6.8 Bolts or studs shall....

Substantiation: I don't agree with the committee statement to reject.

Bolting is a method of attachment accomplished by fasteners commonly known as bolt, stud, MSR and ATR etc.

I don't not agree with the committee statement...16<sup>th</sup> inch is not restrictive...bolt, studs and ATR are ASTM compliant including the nuts that are commonly installed on all of them.

Additionally contractors drill holes, they do not machine slotted holes typical to specialty construction materials WHICH PURPOSELY ARE BEYOND THE SCOPE OF THIS STANDARD. Proprietary structural information regarding the installation of specialty construction materials including slotted, angle or strut should be provided by the manufacturer of the product.

Additionally this committee statement conflicts with the committee statement on proposal 3-318.

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13- Log #352 AUT-HBS  
(9.2.3.2.1)

Final Action:

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Submitter: Victoria B. Valentine, National Fire Sprinkler Association, Inc.

Comment on Proposal No: 13-327

Recommendation: Modify the text to account for the new section added as follows:

"Unless the requirements of 9.2.3.2.2 or through 9.2.3.2.4~~5~~ are met.

Substantiation: A new section was during the ROP that needs to be included. In addition,Section 9.2.3.2.3 is also a variation from the base paragraph and should be included with the exceptions.

---

13- Log #49 AUT-HBS  
(9.2.4.1)

Final Action:

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Submitter: Thomas G. Wellen, American Fire Sprinkler Association, Inc.

Comment on Proposal No: 13-329

Recommendation: Revise text to read as follows:

9.2.4.1 Unless the requirements of 9.2.4.2, 9.2.4.3, 9.2.4.4, 9.2.4.5, or 9.2.4.6 are met, hangers for mains shall be in accordance with 9.2.2, between each branch line, or on each section of pipe, whichever is the lesser dimension.

9.2.4.2 For welded or mechanical outlets on a continuous section of pipe, hanger spacing shall be according to Table 9.2.2.1(a) or Table 9.2.2.1(b).

Substantiation: A reference to 9.2.4.2 in 9.2.4.1 is needed to avoid a conflict between the two sections.

---

13- Log #55 AUT-HBS  
(9.2.4.1)

Final Action:

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Submitter: Kenneth W. Wagoner, Parsley Consulting Engineers

Comment on Proposal No: 13-329

Recommendation: Revise text to read as follows:

9.2.4.1 Unless the requirements of 9.2.4.2, 9.2.4.3, 9.2.4.4, 9.2.4.5, or 9.2.4.6 are met, hangers for mains shall be in accordance with 9.2.2, between each branch line, or on each section of pipe, whichever is the lesser dimension.

Substantiation: Section 9.2.4.1 should reference the revised 9.2.4.2, as well as 9.2.4.3-9.2.4.6, as it also covers hanger spacing on pipe with welded and mechanical outlets.

---

13- Log #223 AUT-HBS  
(9.3.4.9 and 9.3.4.9.1 (New) )

Final Action:

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Submitter: Robert E. Bachman, Robert E. Bachman, Consulting Structural Engineer

Comment on Proposal No: 13-337

Recommendation: Add text to read as follows:

9.3.4.9 Clearance from structural members not penetrated or used, collectively or independently, to support the piping shall be at least 2 in. (50 mm).

9.3.4.9.1 A clearance of at least 2 in. (50 mm) in any direction shall be provided between structural members and sprinkler risers, drops and heads.

Substantiation: Interaction between sprinkler risers, drops and heads and structural members is a major source of sprinkler failure during earthquakes. While Section 9.3.4.9 requires a clearance between sprinkler piping and structural members, it is unclear whether this would apply to sprinkler drops, risers and heads. This additional text provides needed clarification language that makes the clearance requirement for these items abundantly clear.

---

13- Log #1 AUT-HBS  
(9.3.5.2.2)

Final Action:

---

Submitter: Kraig Kirschner, AFCON

Comment on Proposal No: 13-340

Recommendation: Additional documentation regarding existing proposed text at 9.3.5.2.2.

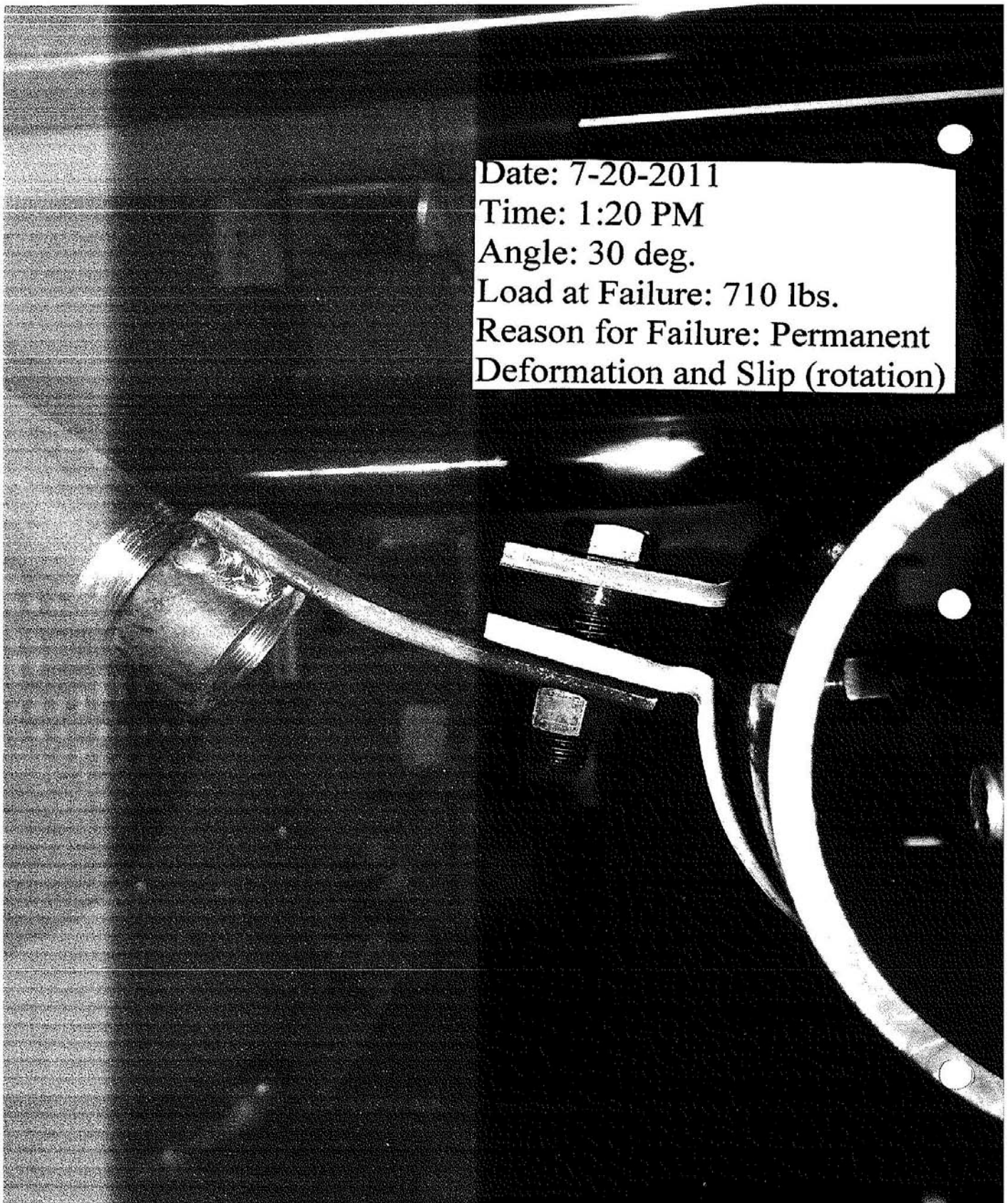
“...tested for listing at maximum eccentricity.”

Substantiation: See two additional figures below.

\*\*\*\*\*Insert Figure #1 Here\*\*\*\*\*

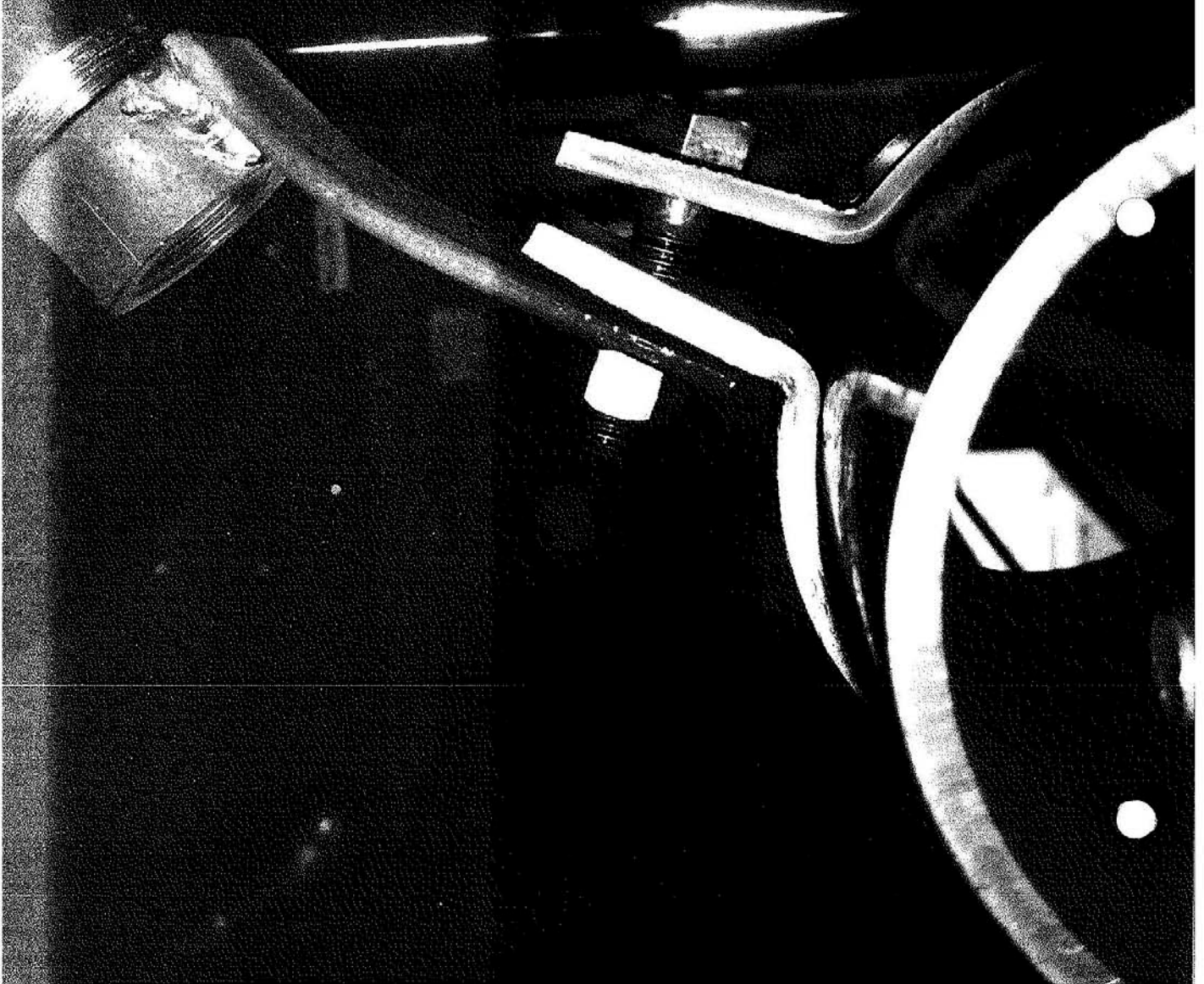
\*\*\*\*\*Insert Figure #2 Here\*\*\*\*\*

Date: 7-20-2011  
Time: 1:20 PM  
Angle: 30 deg.  
Load at Failure: 710 lbs.  
Reason for Failure: Permanent  
Deformation and Slip (rotation)



13\_L1\_Figure #1\_S

Date: 7-21-2011  
Time: 2.00 PM  
Angle: 45 deg.  
Load at Failure: 980 lbs.  
Reason for Failure: Permanent  
Deformation and Slip (Rotation)



13\_L1\_Figure #2\_S

13- Log #135 AUT-HBS  
(Table 9.3.5.3.2(d))

Final Action:

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Submitter: David W. Ash, Lubrizol Advanced Materials, Inc.

Comment on Proposal No: 13-344

Recommendation: None given.

Substantiation: The committee acted appropriately on the submitted proposal 13-344. The submitter of the proposal has misinterpreted the burst pressure values for CPVC as yield stress numbers. During the standard development cycle for NFPA 13-2010, test data was presented to validate the elongation at rupture (deformability) of CPVC pipe and fittings. That same set of test data shows that the CPVC compounds used to manufacture fire sprinkler pipe and fittings have a yield stress value of over 8000 psi (comment 13-174 and supporting data).

ASTM D1784 is the standard which specifies how to classify CPVC compounds. It does not specify a minimum acceptable value for yield strength.

---

13- Log #56 AUT-HBS  
(9.3.5.3.6)

Final Action:

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Submitter: Kenneth W. Wagoner, Parsley Consulting Engineers

Comment on Proposal No: 13-341

Recommendation: Revise text to read as follows:

9.3.5.3.6 Where there is a change in direction of the piping, the cumulative distance between consecutive lateral sway braces shall not exceed the maximum permitted distance in accordance with 9.3.5.3.2.2.

Substantiation: The correct reference for maximum distance allowed between lateral braces is 9.3.5.3.2.2, which note that lateral braces may not be spaced greater than 40'

---

13- Log #109 AUT-HBS  
(9.3.5.3.9)

Final Action:

Submitter: Kraig Kirschner, AFCON

Comment on Proposal No: 13-346

Recommendation: Delete paragraph 9.3.5.3.9 ENTIRELY

Substantiation: Eliminate inconsistency in NFPA 13 standard.

Ch. 9 Sway bracing protocol has strict tenets/methodology

Why Sway Brace.....When Sway Brace .... How Sway Brace....Sway Brace Mechanics

Therefore, purposeful omission of sway braces violates this protocol and is arbitrary and inconsistent.

THE HANGER EXCEPTIONS described in paragraphs 9.3.5.3.9 and 9.3.5.3.10 should be eliminated from Chapter 9 because they are intellectually inconsistent with the conservative tenets of the NFPA 13 emergency system. They are dismissive of all the Chapter 9 sway brace protocols including requiring sway braces to limit stress on system piping and limit additional non-axial load on hangers. The potential additional seismic load on the hanger is not defined, unknown and absolutely contrary to the precise structural definition of a sway braces performance and function. The conservatively defined mechanics of the pipe hanger may be breached.

Since 2007, NFPA 13 sway bracing is relative to the structural characteristics of the system piping as respects seismic force per SEI/ASCE 7 and specific to the USGS.

THE HANGER EXCEPTIONS do not comport to the above tenets of restraining the force on system pipe in relation to the zone of influence, Ss, Cp, pipe material and pipe size.

I believe co-mingling of the vertical performance of hangers with the horizontal performance of sway braces is not prudent and invites interpretation over clarity.

THE HANGER EXCEPTIONS are arbitrary by assuming a defined benefit of uniform predictability regardless of many Chapter 9 variables.

Since THE HANGER EXCEPTIONS still omit quantifying the seismic force and analyzing its effects on the system piping material, shouldn't we remedy this situation now? This is exactly the problem that the I-Codes had with all of Chapter 9 prior to 2007 NFPA 13.

The hanger exceptions directly conflict with the required sway brace features specified in the following Chapter 9 paragraphs:

9.3.5.2.3 "...weakest component ... with safety factors."

9.3.5.3.2 "... based on the piping material of the sprinkler system."

9.3.5.3.2.3 "The maximum permissible load... of a sway brace ..."

9.3.5.6 Horizontal Seismic Loads

9.3.5.7 "...arranged to resist..."

9.3.5.8.1 "Sway bracing shall be tight"

9.3.5.8.4 "...avoid eccentric loading on fittings and fasteners."

9.3.5.9.2 "The type of fasteners ... shall be limited..."

9.3.5.9.7.1 "Concrete anchors shall be prequalified for seismic applications..."

9.3.5.10.1 "...listed for maximum load rating..."

9.3.5.10.2.1 "... shall be listed."

9.3.5.11.1 "...directly attached..."

A.9.1.2.3 "Limit horizontal loads on hanger rod"

In view of the above, I believe it is prudent to remove Paragraphs 9.3.5.3.9 and 9.3.5.3.10 from the 2013 NFPA 13 Chapter 9 text.

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13- Log #77 AUT-HBS  
(9.3.5.3.9 and A.9.3.5.9 (New) )

Final Action:

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Submitter: John Deutsch, City of Brea Fire Department

Comment on Proposal No: 13-346

Recommendation: Add text to read as follows:

9.3.5.3.9 The requirements of 9.3.5.3 shall not apply to pipes branch lines or feed mains individually supported by rods less than 6 in. (152 mm) long measured between the top of the pipe and the point of attachment to the building structure. The exception to the requirements of 9.3.5.3 shall not apply to cross mains.

A.9.3.5.9 The 6" hanger rods exception to the requirements of 9.3.5.3 shall only be used for the pipe or portion of pipe being hung directly from the hanger as limited by hanger spacing rules in section 9.2.2. The exception to the requirements of 9.3.5.3 shall not be permitted to include any tributary loads from other pipes with separate hangers such as the added longitudinal forces from branch lines.

Substantiation: The requirements of section 9.3.5.1.1 can not be met by allowing the omission of sway bracing in lieu of short rods. The ZOI method uses the sway brace or attachment load capacity limits to control lateral loads on cross mains sway brace. The short rod rule does not have any load capacity limit. Therefore as 9.3.5.3.9 is currently written an unlimited amount of longitudinal seismic force from branch lines can be added to a cross mains lateral seismic force and be controlled by the 6" rod.

13- Log #108 AUT-HBS  
(9.3.5.3.10)

Final Action:

Submitter: Kraig Kirschner, AFCON

Comment on Proposal No: 13-347

Recommendation: Delete paragraph 9.3.5.3.10 Entirely

Substantiation: Eliminate inconsistency in NFPA 13 standard.

Ch. 9 Sway bracing protocol has strict tenets/methodology

Why Sway Brace.....When Sway Brace .... How Sway Brace....Sway Brace Mechanics

Therefore, purposeful omission of sway braces violates this protocol and is arbitrary and inconsistent.

THE HANGER EXCEPTIONS described in paragraphs 9.3.5.3.9 and 9.3.5.3.10 should be eliminated from Chapter 9 because they are intellectually inconsistent with the conservative tenets of the NFPA 13 emergency system. They are dismissive of all the Chapter 9 sway brace protocols including requiring sway braces to limit stress on system piping and limit additional non-axial load on hangers. The potential additional seismic load on the hanger is not defined, unknown and absolutely contrary to the precise structural definition of a sway braces performance and function. The conservatively defined mechanics of the pipe hanger may be breached.

Since 2007, NFPA 13 sway bracing is relative to the structural characteristics of the system piping as respects seismic force per SEI/ASCE 7 and specific to the USGS.

THE HANGER EXCEPTIONS do not comport to the above tenets of restraining the force on system pipe in relation to the zone of influence, Ss, Cp, pipe material and pipe size.

I believe co-mingling of the vertical performance of hangers with the horizontal performance of sway braces is not prudent and invites interpretation over clarity.

THE HANGER EXCEPTIONS are arbitrary by assuming a defined benefit of uniform predictability regardless of many Chapter 9 variables.

Since THE HANGER EXCEPTIONS still omit quantifying the seismic force and analyzing its effects on the system piping material, shouldn't we remedy this situation now? This is exactly the problem that the I-Codes had with all of Chapter 9 prior to 2007 NFPA 13.

The hanger exceptions directly conflict with the required sway brace features specified in the following Chapter 9 paragraphs:

9.3.5.2.3 "...weakest component ... with safety factors."

9.3.5.3.2 "... based on the piping material of the sprinkler system."

9.3.5.3.2.3 "The maximum permissible load... of a sway brace ..."

9.3.5.6 Horizontal Seismic Loads

9.3.5.7 "...arranged to resist..."

9.3.5.8.1 "Sway bracing shall be tight"

9.3.5.8.4 "...avoid eccentric loading on fittings and fasteners."

9.3.5.9.2 "The type of fasteners ... shall be limited..."

9.3.5.9.7.1 "Concrete anchors shall be prequalified for seismic applications..."

9.3.5.10.1 "...listed for maximum load rating..."

9.3.5.10.2.1 "... shall be listed."

9.3.5.11.1 "...directly attached..."

A.9.1.2.3 "Limit horizontal loads on hanger rod"

In view of the above, I believe it is prudent to remove Paragraphs 9.3.5.3.9 and 9.3.5.3.10 from the 2013 NFPA 13 Chapter 9 text.

13- Log #204 AUT-HBS  
(9.3.5.5.1)

Final Action:

Submitter: John Silva, Hilti North America

Comment on Proposal No: 13-339

Recommendation: Add new Section 9.3.5.5.1.1

9.3.5.5 Lateral Sway Bracing.

9.3.5.5.1\* Lateral sway bracing shall be provided on all feed and cross mains regardless of size and all branch lines and other piping with a diameter of 2-1/2 in. (65 mm) and larger.

9.3.5.5.1.1 Where not provided with sway bracing, branch lines shall be provided with restraint in accordance with 9.3.6.

Substantiation: The requirement for restraint of small diameter branch lines is often missed in practice. This pointer ensures that lateral bracing or restraint is provided on all branch lines.

13- Log #71 AUT-HBS  
(9.3.5.6.4 and 9.3.5.6.4.1)

Final Action:

Submitter: John Deutsch, City of Brea Fire Department

Comment on Proposal No: 13-351

Recommendation: 9.3.5.6.4.1\* When riser nipples are provided in systems requiring seismic protection, the weight of the water filled branch line pipe in the zone of influence ( $W_p$ ) as defined by 9.3.5.6.1, including the length of the riser nipple, multiplied by the seismic coefficient ( $C_p$ ), and by the height of the riser nipple ( $H_r$ ), divided by the section modulus ( $S$ ) of the riser nipple piping shall not meet or exceed the yield strength ( $F_y$ ) of the riser nipple piping. If the calculated value is equal to or greater than the yield strength or the riser nipple, the longitudinal seismic load of each line shall be evaluated individually and branch lines shall be provided with longitudinal sway bracing per 9.3.5.4.

Formula:  $(H_r * W_p * C_p) / S \geq F_y$

Where:

$H_r$  = Height of RN (in inches)

$W_p$  = Tributary weight in pounds for the branch line or portion of branch line within the ZOI including the riser nipple

$C_p$  = Seismic coefficient

$S$  = Sectional modulus of the riser nipple pipe

$F_y$  = Allowable yield strength

30,000 for Steel

11,000 for Copper

2,000 for CPVC

A.9.3.5.6.4.1 When steel schedule 10 and schedule 40 pipe are used, the section modulus can be found in Table 9.1.1.6.1(b).

Substantiation: This is a revision / correction to the committee accepted in principal proposal. The sign to greater than or equal to has been corrected, values for copper and CPVC have been added and the text has had some word smithing applied.

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13- Log #146 AUT-HBS  
(9.3.6.3)

Final Action:

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Submitter: Kenneth E. Isman, National Fire Sprinkler Association, Inc.

Comment on Proposal No: 13-359

Recommendation: Modify Section 9.3.6.3 and add annex language as follows:

9.3.6.3 The end sprinkler on a branch line shall be restrained ~~against excessive vertical and lateral movement.~~

Substantiation: The proposed language is mostly an editorial change. The concept has been to locate restraint at the ends of branch lines for many editions. However, there is confusion in the field as to how to determine the vertical and lateral movement as well as what values would then be deemed "excessive."

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13- Log #336 AUT-HBS  
(9.3.7.8 and A.9.1.3)

Final Action:

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Submitter: Victoria B. Valentine, National Fire Sprinkler Association, Inc.

Comment on Proposal No: 13-360

Recommendation: Add new language as follows:

9.3.7.8 Where seismic protection is provided , concrete anchors used to secure hangers to the building structure shall be in accordance with ACI 355.2, *Qualification of Post-Installed Mechanical Anchors in Concrete and Commentary*, and installed in accordance with manufacturer's instructions.

A.9.1.3 In areas that are subject to provisions for earthquake protection, the fasteners in concrete will need to be prequalified. See Section 9.3.7.8 for information.

Substantiation: The language from the proposal was editorially modified by the task group. After task group discussions it was decided the language should be added to NFPA 13. There is an attached report of the task group that provides additional background information and some product information.

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

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13- Log #113 AUT-HBS  
(9.3.11)

Final Action:

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Submitter: Technical Correlating Committee on Automatic Sprinkler Systems,

Comment on Proposal No: 13-361a

Recommendation: Where and when the TC's use the term "Readily Accessible", the TC's are directed to better define their intent on a case by case basis.

Substantiation: This is a direction from the Technical Correlating Committee on Automatic Sprinkler Systems in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

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13- Log #250 AUT-HBS  
(A.9.1.1.7)

Final Action:

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

Comment on Proposal No: 13-550

Recommendation: Accept original proposal add add new text to read as follows:

A.9.1.1.7 The rules covering the hanging of sprinkler piping take into consideration the weight of water-filled pipe plus a safety factor. No allowance has been made for the hanging of nonsystem components from sprinkler piping. NFPA 13 provides the option to support sprinkler piping from other sprinkler piping where the requirements of Section 9.1.1.2 are met. It is not the intent to prohibit materials that have no impact on the external load bearing capability of the sprinkler pipe such as decorations, unless these materials obstruct the sprinkler discharge.

Substantiation: My original proposal would not permit items that obstruct sprinkler discharge to be hung from sprinkler pipe. If sprinkler discharge is the real issue, what's the problem with running wire along sprinkler piping (especially if piping is concealed), since the weight is inconsequential. This is a turf issue that really has no merit, in every circumstance, and frankly gives enforcers and sprinkler inspectors needless fodder for citations. Give users of the standard some true rationale as to why NOTHING can be hung from sprinkler pipe. Otherwise, give them the needed relief as proposed. Then, NFPA 25 can follow suit.

13- Log #73 AUT-HBS  
(A.9.3.2.4)

Final Action:

Submitter: John Deutsch, City of Brea Fire Department  
 Comment on Proposal No: 13-554  
 Recommendation: Comment:  
 Proposed Code

A.9.3.2.4 See Figure A.9.3.2.4. Drops that extend into freestanding storage racks or other similar structures should be designed to accommodate a horizontal relative displacement between the storage rack and the overhead supply piping. The horizontal relative displacement should be determined using the least value from one of the following formulas and shall be taken as the height of the top point of attachment to the storage rack above its base or the highest point of potential contact between the rack structure and the piping above its base, whichever is higher, ~~multiplied by  $\pm 0.05$  unless a smaller value is justified by test data or analysis. The horizontal relative displacement should be accommodated by two or more flexible couplings, swing joints, or other approved means. The designer shall only be required to account for the differential movement value as determined from one of the two formulas, not both and the lesser of the two value shall be acceptable. It shall be the responsibility of the sprinkler designer to determine how to account for the determined differential movement using flexible couplings or other approved means.~~

$$D = H * 0.06 * S_1 * F_v$$

Or

$$D = H * 0.05$$

Where:

D = Differential movement between the rack and the roof (feet or meters)

H = Height of the top point of attachment to the rack (feet or meters)

$S_1$  = One second period spectral acceleration per USGS 2010 Seismic Design Maps (see ASCE 7-10).

$F_v$  = One second period Site Coefficient (Site Class D)

$F_v$  is a function of  $S_1$  and shall be determined as follows:

\*\*\*Insert Table 13\_L73\_R here\*\*\*

Note: Use straight-line interpolation for intermediate values of  $S_1$

**Substantiation:** Rack storage systems in all areas should not be subjected to worst case potential displacement as would be required in seismic zones, just as NFPA 13 does not require the same  $C_p$  value for all brace calculations for all sprinkler systems. The original text allows for smaller displacement values; however it does not provide any procedure to determine such values. Further, the original text suggests the use of flexible couplings to account for displacement; however, 5 percent rack displacement is well beyond the capabilities of 2 flexible couplings, which makes the original text misleading. The storage rack potential displacement should be determined using site specific information, rather than an arbitrarily applied value of 5% for all buildings without regard to their potential seismic activity. This can be accomplished using the same resources as are used to determine  $S_s$ .

The potential rack displacement is a function of the ASCE 7-10 variable  $S_1$  (rather than the  $S_s$  which is more appropriate for buildings) which is the mapped MCE spectral response acceleration at a period of one second, as defined in section 11.3 of ASCE 7-10. The use of the variable  $S_1$  to determine rack displacement would not require a worst case scenario to be applied to all buildings without regard to their location in a seismic zone. As a result, racks installed in areas which are not subject to potentially large seismic events will not be required to provide for the same

$S_1$	Fv
$\leq 0.1$	2.4
$= 0.2$	2.0
$= 0.3$	1.8
$= 0.4$	1.6
$\geq 0.5$	1.5

potential displacement as are those in areas where the potential is much more severe.

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13- Log #52 AUT-HBS  
(A.9.3.5)

**Final Action:**

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**Submitter:** Kraig Kirschner, AFCON  
**Comment on Proposal No:** 13-557

**Recommendation:** Revise text to read as follows:

Proper...good craftsmanship with appropriate brace angle corresponding to correct...plans and drawings.

**Substantiation:** I do not agree with the committee statement to reject.

Suggest adding the above wording to the proposal to enhance clarity.

Documentation provided with proposal 13-340 should be used to justify the need for and support the addition of this QC statement that corresponds to the hanger QC statement in A.9.2.

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13- Log #353 AUT-HBS  
(Figure A.9.3.5(a) and (b))

**Final Action:**

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**Submitter:** Victoria B. Valentine, National Fire Sprinkler Association, Inc.

**Comment on Proposal No:** 13-575

**Recommendation:** Modify Figure A.9.3.5 (a), and Figure A9.3.5 (b) will also need to be correlated.

\*\*\*INSERT FIGURE HERE\*\*\*

**Substantiation:** The section numbers for the adjusted load rating under "Seismic Brace Attachments" were updated to reflect the pre-print document and where the table is currently located. The load calculation portion was also modified for clarity. The "default" language has been removed as it is rarely used. In addition, a line for transition attachments has been added as some structural connections require this additional component.

# Seismic Bracing Calculations

Sheet \_\_\_ of \_\_\_

Project: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_

Contractor: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 Telephone: \_\_\_\_\_  
 Fax: \_\_\_\_\_

## Brace Information

Length of brace: \_\_\_\_\_  
 Diameter of brace: \_\_\_\_\_  
 Type of brace: \_\_\_\_\_  
 Angle of brace: \_\_\_\_\_  
 Least radius of gyration:\* \_\_\_\_\_  
 r/r value:\* \_\_\_\_\_  
 Maximum horizontal load: \_\_\_\_\_

## Seismic Brace Attachments

Structure attachment fitting or tension-only bracing system:  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_  
 Transition attachment fitting (where applicable):  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_  
 Listed load rating: \_\_\_\_\_ Adjusted load rating per 9.3.5.2.4: \_\_\_\_\_  
 Sway brace (pipe attachment) fitting:  
 Make: \_\_\_\_\_ Model: \_\_\_\_\_  
 Listed load rating: \_\_\_\_\_ Adjusted load rating per 9.3.5.2.4: \_\_\_\_\_

## Fastener Information

Orientation of connecting surface: \_\_\_\_\_  
 Fastener:  
 Type: \_\_\_\_\_  
 Diameter: \_\_\_\_\_  
 Length (in wood): \_\_\_\_\_  
 Maximum load: \_\_\_\_\_

## Seismic Brace Assembly Detail

(Provide detail on plans)

Brace identification no. \_\_\_\_\_ (to be used on plans): \_\_\_\_\_

Lateral brace       Longitudinal brace       4-way brace

## Sprinkler System Load Calculation [ $F_{pw} = C_p W_p$ ]

$C_p =$  \_\_\_\_\_

Diameter	Type	Length (ft)	Total (ft)	Weight per ft	Weight
				lb/ft	lb
				lb/ft	lb
				lb/ft	lb
				lb/ft	lb
				lb/ft	lb
				lb/ft	lb
<b>Subtotal Weight</b>					lb
<b>W<sub>p</sub> (incl. 15%)</b>					lb
<b>Total (F<sub>pw</sub>)</b>					lb

\* Excludes tension-only bracing systems

13-Log 353 - ROC - Figure A.9.3.5(a)