



**National Fire Protection Association**

1 Batterymarch Park, Quincy, MA 02169-7471  
Phone: 617-770-3000 • Fax: 617-770-0700 • [www.nfpa.org](http://www.nfpa.org)

**MEMORANDUM**

**To:** The Technical Committee on Sprinkler System Discharge Criteria  
**From:** Joanne Goyette  
**Date:** March 15, 2011  
**Subject:** Supplemental Ballot on **NFPA 13** Report on Proposals (A12)

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Attached you will find a Supplemental Ballot and Proposal on **NFPA 13**. Table 12.12.1.2(a) was inadvertently left off Committee Proposal 13-587 Log #CP306.

The ballot is for formally voting on whether or not you concur with the Committee's Actions on the Proposal. If you do not concur, or you abstain, you **must** provide a technical reason.

Please do not vote negatively because of editorial errors. However, please bring such errors to my attention for correction.

Please return your ballot as soon as possible, but no later than **Friday, March 18, 2011**. Your cooperation in meeting this deadline is appreciated. If you wish to fax your ballot, please fax to **(617) 984-7110** or you may e-mail [jgoyette@nfpa.org](mailto:jgoyette@nfpa.org)

**Note:** Please remember that the return of ballots and attendance at Committee Meetings are required for all Principal and Alternate members in accordance with the Regulations Governing Committee Projects.

Attachments: Ballot Form  
Proposal

**PROPOSAL SUPPLEMENTAL BALLOT DUE BY: Friday, March 18, 2011**

**NFPA 13 AUT-SSD**

Standard for the Installation of Sprinkler Systems  
Staff Liaison: Matthew J. Klaus

**Return Completed Ballot To: Joanne Goyette**  
**E-Mail to [jgoyette@nfpa.org](mailto:jgoyette@nfpa.org)**  
**Fax to 617-984-7110**  
**One Batterymarch Park, Quincy, MA 02169**

**Committee Action Key:**

A = Accept  
R= Reject  
APA = Accept in Part  
APR = Accept in Principle  
APP = Accept in Principle in Part  
H = Hold

With respect to the Committee Actions on the Proposals which accompanied the ballot, please record me as voting: (check one):

**Affirmative On All Items. I agree with all committee meeting actions without comment.**  
**Please return this Ballot Page only to NFPA.**

**Affirmative With Exception(s): I agree with all committee meeting actions Except for the Affirmative with comment, Negative and /or Abstention checked below.**  
**\*Reasons must accompany these votes.**

When possible, reasons are requested via e-mail in a Word Document.

Date: \_\_\_\_\_ Signed: \_\_\_\_\_

Name: \_\_\_\_\_

Type or Print black ink

Proposal No	Log No	Section	Committee Action	Vote		
				Affirm with Comment*	Negative*	Abstain*
13-587	CP306	A.12.12, 12.12.1.2(a)	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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13-587 Log #CP306 AUT-SSD  
(A.12.12, 12.12.1.2(a))

Final Action: Accept

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**Submitter:** Technical Committee on Sprinkler System Discharge Criteria,

**Recommendation:** Add the following text at the end of existing A.12.12:

A series of seven large scale fire tests involving idle wood pallets stored on the floor was conducted at Underwriters Laboratories in 2009 and 2010. This testing was conducted to investigate the performance of an upright sprinkler having a nominal K-Factor of 11.2 (160) when installed to protect a 8 ft. (2.4 m) high array of new 4-way entry, softwood pallets under a 30 ft. (9.1 m) ceiling. The pallets used for this test series were supplied by CHEP USA. The impact of the sprinkler temperature rating on fire control performance was the key variable investigated during this test series. Except for the temperature rating of the sprinkler's heat responsive element, the same sprinkler design was used for all seven tests. Three tests were conducted using 286 °F (141°C) temperature rated sprinklers, two tests were conducted using 200 °F (93°C) temperature rated sprinklers and two tests conducted using 155 °F (68°C) temperature rated sprinklers. The ignition location for all tests was centered between four sprinklers. To enhance test repeatability, the four sprinklers nearest the ignition location were arranged to discharge water when the first sprinkler operated. The results of this test series are summarized in Table A.12.12.

The results of this large scale fire test series indicated that sprinklers in the 155 °F (68°C) and 200 °F (93°C) temperature ratings performed significantly better than the 286 °F (141°C) temperature rated sprinkler as evidenced by a reduced number of operated sprinklers and lower steel temperatures.

\*\*\*\*Insert Table A.12.12 Summary of Fire Test Data for Idle Pallets (4-way Entry Softwood) Here\*\*\*\*

\*\*\*\*Insert Revised Table 12.12.1.2(a) Here\*\*\*\*

**Substantiation:** Test data of idle pallet storage supports the revision of Table 12.12.1.2(a)

**Committee Meeting Action:** Accept

**Table A.12.12 Summary of Fire Test Data for Idle Pallets (4-way Entry Softwood) Stored on the Floor**

Test Date	Test Array	Nominal Storage Height, ft (m)	Ceiling Height ft(m)	Sprinkler Information	Number of Operated Sprinklers	Time of First Sprinkler Operation, Min:sec	Time of Last Sprinkler Operation, Min:sec	Max. 1 Min. Ave. Steel Temp. °F (°C)
9/1/09	2X3 w/ 6 in.(152 mm) Longitudinal Flue Main Array 2X1 Target Pallets on Each End w/ 6 in. (152 mm) Longitudinal and Transverse Flues	8 (2.4)	30 (9.1)	286°F, K=11.2 0.45 gpm/ft <sup>2</sup> (141°C, K=160 18.3 mm/min)	12	5:00	23:03	220 (104)
9/10/09	2X3 w/ 6 in.(152 mm) Longitudinal Flue Main Array 2X1 Target Pallets on Each End w/ 6 in. (152 mm) Longitudinal and Transverse Flues	8 (2.4)	30 (9.1)	286°F, K=11.2 0.45 gpm/ft <sup>2</sup> (141°C, K=160 18.3 mm/min)	13	5:05	19:10	208 (98)
9/11/09	2X3 w/ 6 in.(152 mm) Longitudinal Flue Main Array 2X1 Target Pallets on Each End w/ 6 in. (152 mm) Longitudinal and Transverse Flues	8 (2.4)	30 (9.1)	286°F, K=11.2 0.45 gpm/ft <sup>2</sup> (141°C, K=160 18.3 mm/min)	16	5:48	19:04	228 (109)
6/21/10	2X3 w/ 6 in.(152 mm) Longitudinal Flue Main Array 2X1 Target Pallets on Each End w/ 6 in. (152 mm) Longitudinal and Transverse Flues	8 (2.4)	30 (9.1)	200°F, K=11.2 0.45 gpm/ft <sup>2</sup> (93°C, K=160 18.3 mm/min)	4	4:10	4:10	134 (57)
6/22/10	2X3 w/ 6 in.(152 mm) Longitudinal Flue Main Array 2X1 Target Pallets on Each End w/ 6 in. (152 mm) Longitudinal and Transverse Flues	8 (2.4)	30 (9.1)	200°F, K=11.2 0.45 gpm/ft <sup>2</sup> (93°C, K=160 18.3 mm/min)	4	3:34	3:34	135 (57)
6/23/10	2X3 w/ 6 in.(152 mm) Longitudinal Flue Main Array 2X1 Target Pallets on Each End w/ 6 in. (152 mm) Longitudinal and Transverse Flues	8 (2.4)	30 (9.1)	155°F, K=11.2 0.45 gpm/ft <sup>2</sup> (68°C, K=160 18.3 mm/min)	4	3:46	3:46	115 (46)
6/23/10	2X3 w/ 6 in.(152 mm) Longitudinal Flue Main Array 2X1 Target Pallets on Each End w/ 6 in. (152 mm) Longitudinal and Transverse Flues	8 (2.4)	30 (9.1)	155°F, K=11.2 0.45 gpm/ft <sup>2</sup> (68°C, K=160 18.3 mm/min)	4	3:09	3:09	113 (45)

**Table 12.12.1.1(a) Control Mode Density/Area Sprinkler Protection for Indoor Storage of Idle Wood Pallets**

									Area of Operation						Water Supply Duration (hours)
			Maximum Storage Height		Maximum Ceiling /Roof Height		Sprinkler Density		High Temperature		Ordinary Temperature		Hose Stream Allowance		
Type of Sprinkler	Location of Storage	Nominal K-Factor	ft	m	ft	m	gpm/ft2	mm/min	ft2	m2	ft2	m2	gpm	L/min	
Control mode density/area	On floor	8 (115) or larger	Up to 6	Up to 1.8	20	6.1	0.20	8.2	<del>2000</del> 3000 <sup>1</sup>	<del>186</del> 279 <sup>1</sup>	<del>3000</del>	<del>279</del>	500	1900	1 1/2
	On floor	11.2 (160) or larger	Up to 8	Up to 2.4	30	9.1	0.45	18.3	2500	232	<del>4000</del>	<del>372</del>	500	1900	1 1/2
	On floor or rack without solid shelves	11.2 (160) or larger	>8 to 12	>2.4 to 3.7	30	9.1	0.60	24.5	3500	325	<del>6000</del>	<del>557</del>	500	1900	1 1/2
			>12 to 20	>3.7 to 6.1	30	9.1	0.60	24.5	4500	418	<del>NA</del>	<del>NA</del>	500	1900	1 1/2
	On floor	16.8 (240) or larger	Up to 20	Up to 6.1	30	9.1	0.60	24.5	<del>2000</del>	<del>186</del>	<del>2000</del>	<del>186</del>	500	1900	1 1/2

Note 1 -- The area of sprinkler operation shall be permitted to be reduced to 2000 ft2 (186m2) when sprinklers having nominal a nominal K-Factor of 11.2 or larger are used, or if high temperature rated sprinklers having a nominal K-Factor of 8.0 are used.

Committee Statement: Large scale fire testing of idle wood pallets having a nominal K-Factor of 11.2 has demonstrated that ordinary temperature rated sprinklers provide enhanced fire protection compared to the same sprinklers in the high temperature rating.