



## National Fire Protection Association

1 Batterymarch Park, Quincy, MA 02169-7471  
Phone: 617-770-3000 • Fax: 617-770-0700 • www.nfpa.org

### MEMORANDUM

TO: NFPA Technical Committee on Special Operations Protective Clothing and Equipment  
FROM: Stacey Van Zandt  
DATE: May 5, 2011  
SUBJECT: NFPA 1951 ROC TC FINAL Ballot Results (F2011)

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The Final Results of the NFPA 1951 ROC Letter Ballot are as follows:

19	Members Eligible to Vote
2	Not Returned (Byrne and Reall)
15	Affirmative on All (Hess – affirmative with comment)
2	Negatives (Gohlke and Sanders - on one or more comments as noted in the attached report)
0	Abstentions

There are two criteria necessary to pass ballot [(1) affirmative  $\frac{2}{3}$  vote and (2) simple majority].

- (1) The number of affirmative votes needed for the proposal/comment to pass is 12.  
(19 eligible to vote - 2 not returned - 0 abstentions =  $17 \times 0.66 = 11.22$ )
- (2) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required. This is the calculation for simple majority:  
[19 eligible  $\div 2 = 9.5 = (10)$ ]

Reasons for negative votes, etc. from alternate members are not included unless the ballot from the principal member was not received.

According to the final ballot results, all ballot items received the necessary  $\frac{2}{3}$  required affirmative votes to pass ballot.

**Document # 1951**

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**1951-1** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**Entire Document** (Log # 39)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-2** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**1.1.1** (Log # 4)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-3** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**1.1.4** (Log # 5)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-4** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**2.3.3** (Log # 3)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-5** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**3.3.38** (Log # 6)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-6** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**3.3.72** (Log # 7)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**Document # 1951**

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**1951-7** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**3.3.91, 3.3.92, 3.3.93, 3.3.94, and 3.3.95** (Log # 8 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-8** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**3.3.123, 3.3.124, 3.3.125, 3.3.126, and 3.3.127** (Log # 9 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-9** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**5.1.7** (Log # 45 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

**Affirmative with Comment**

**Hess, D.** I believe the terms generic and general need be verified for proper usage in 5.1.7.8 .  
My belief, boots and footwear should be consistent .

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**1951-10** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**6.1, 6.2, 6.11, 8.25, 8.26, 8.27 Preprint** (Log # CC7 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-11** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**6.1.1.10 and 6.2.1.11** (Log # 1 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-12** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**6.1.1.12** (Log # 43 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-13** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**6.1.3.3.1, Table 6.X, and 6.1.3.7.1** (Log # 10 )

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**Not Returned**  
**Byrne, C.**  
**Reall, J.**

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**1951-14** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**6.1.4.4.3 and 6.2.4.4.3** (Log # 12 )

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**Not Returned**  
**Byrne, C.**  
**Reall, J.**

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**1951-15** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**6.2.1.13** (Log # 46 )

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**Not Returned**  
**Byrne, C.**  
**Reall, J.**

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**1951-16** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**6.2.1.17** (Log # 44 )

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**Not Returned**  
**Byrne, C.**  
**Reall, J.**

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**1951-17** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**6.2.3.3.1 and Table 6.X** (Log # 11 )

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**Not Returned**  
**Byrne, C.**  
**Reall, J.**

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**1951-18** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**6.2.5.1** (Log # CC2 )

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**Not Returned**  
**Byrne, C.**  
**Reall, J.**

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**Document # 1951**

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**1951-19** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**6.3.4.4** (Log # 13 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-20** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**7.1.1.9** (Log # 2 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-21** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**7.1.1.11** (Log # 14 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-22** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**7.1.3.2, 7.2.3.2, and 7.3.4.2** (Log # 18 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-23** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**7.1.3.5, 7.2.3.5, 7.3.4.5, 8.29 Preprint** (Log # CC9 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-24** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**7.1.3.7, 7.2.3.7, 7.3.4.7 Preprint** (Log # CC12 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-25** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**7.1.3.14, 7.2.3.18, 7.3.4.21, 8.49.2.2, 8.49.4.1 Preprint** (Log # CC14 )

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Not Returned

**Byrne, C.**

**Reall, J.**

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**1951-26** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**7.1.4.6, 7.2.4.6, 7.3.5.8, 8.37 Preprint** (Log # CC16)

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Not Returned

**Byrne, C.**

**Reall, J.**

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**1951-27** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**7.1.4.10, 7.2.4.10, 8.32 Preprint** (Log # CC3)

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Not Returned

**Byrne, C.**

**Reall, J.**

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**1951-28** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**7.1.4.18, 7.2.4.18 Preprint** (Log # CC4)

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Not Returned

**Byrne, C.**

**Reall, J.**

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**1951-29** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**7.3.1.3, and 8.4.5** (Log # 42)

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Not Returned

**Byrne, C.**

**Reall, J.**

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**1951-30** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**7.3.2.18** (Log # 16)

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Not Returned

**Byrne, C.**

**Reall, J.**

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**1951-31** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**7.3.3.12** (Log # 15)

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Not Returned

**Byrne, C.**

**Document # 1951**

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**Reall, J.**

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**1951-32** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**7.3.4.18 and 7.3.5.22** (Log # 17)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-33** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**7.3.6,8.1.9, 8.1.12, and 8.1.14** (Log # 19)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-34** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**Chapter 8** (Log # 47)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

**Affirmative with Comment**

**Hess, D.** How will wording be determined and input to be consistent with NFPA 1971? Wording not yet publicly available?

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**1951-35** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**Chapter 8** (Log # 48)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

**Affirmative with Comment**

**Hess, D.** See my Comment on Affirmative on Comment 1951-34 (Log #47).

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**1951-36** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**Chapter 8** (Log # 49)

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**Not Returned**

**Byrne, C.**

**Reall, J.**

**Affirmative with Comment**

**Hess, D.** See my Comment on Affirmative on Comment 1951-34 (Log #47).

**1951-37** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.1, 8.1.1** (Log # 40 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

**Affirmative with Comment**

**Hess, D.** See my Comment on Affirmative on Comment 1951-34 (Log #47).

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**1951-38** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.1.7 Preprint** (Log # CC10 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-39** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.1.9.1 through 8.1.9.14** (Log # 20 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-40** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.1.10 and 8.1.11** (Log # 21 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-41** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.1.12, 8.5.11.4, 8.18.5.1.1, 8.18.5.2.1, 8.19.5.1, 8.20.5.1, 8.21.5.1.1, 8.21.5.1.2, 8.21.5.2.2, Preprint** (Log # CC1 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-42** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.1.14 Preprint** (Log # CC11 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-43** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.2.2.2, 8.4.3.1, 8.5.2.2, 8.7.2.2, 8.8.2.2, 8.9.2.2, 8.13.2.2, 8.16.2.2, and 8.17.2.2 (Log # 26)**

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-44** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.2.2.2 and 8.2.2.3 (Log # 23)**

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-45** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.2.8.4 (Log # 24)**

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-46** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.2.9, 8.16.8, 8.17.8, 8.24.8, 8.24.9, 8.24.10, 8.25.7, 8.26.7, 8.27.7,Preprint (Log # CC13)**

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-47** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.2.9.2, 8.2.9.3, 8.7.2.3, 8.8.2.3, 8.11.3.1, and 8.14.3.1 (Log # 22)**

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-48** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2  
**8.2.9.2, 8.25.7.1 Preprint (Log # CC6)**

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-49** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**8.2.9.4** (Log # 25 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-50** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**8.5.13 Preprint** (Log # CC17 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-51** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**8.5.13.9** (Log # CC5 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-52** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2

**8.6.4 and 8.6.5** (Log # 38 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

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**1951-53** Eligible To Vote:19 Affirmative: 15 Negative: 2 Abstain: 0 Not Returned: 2

**8.6.5** (Log # 50 )

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**Not Returned**

**Byrne, C.**

**Reall, J.**

**Negative**

**Gohlke, D.** Other TC's have accepted this comment into NFPA 1992, NFPA 1994 and NFPA 1971. As a matter of consistency and harmonization, this committee should reconsider and accept this comment too. Especially in light of the fact that this committee was not unified and almost equally divided on the subject. It would be odd to have only NFPA 1951 compliant products evaluated with the procedures allowed by Note 6 in ASTM F 1868 and not others. It would create confusion in the market when comparing and interpreting THL values generated by two different protocols.

The following arguments submitted in the substantiation of the comment are still valid, persuasive, and not refuted:

The new revision of ASTM F 1868 has introduced new techniques via Note 6 for handling composites that distort dimensionally during the test. The standard values of performance in Total Heat Loss testing are dependent on the test parameters and procedures. By modifying the testing and handling techniques of the specimens, Note 6 has the unintended consequence of modifying standard values. It can allow materials that previously failed the requirements to pass. Furthermore, the instructions are biased and unclear. For example, in a multilayer composite it is difficult to determine, which layer, if any, is not laying flat per Note 6. By preferentially opening the test chamber and re-smoothing one or more of the layers in one composite, and not all layers in all composites, Note 6 introduces bias. It is unclear when to implement Note 6 or which parts of Note 6. When is a flat specimen no longer flat? It also introduces a bias by assuming materials only change in the x-y dimension under the conditions of the test. What about specimens that change in the z direction? What about specimens that change their moisture content without changing dimensionally? Why should only this one form of change be given the advantage of re-positioning and re-smoothing? A uniform handling of the specimens is needed as this comment recognizes.

I offer the following additional comments to help persuade the committee to reconsider:

The THL test in ASTM F 1868 part C already has a mechanism for handling fabrics that change under the conditions of the test. A calculation of the rate of change is made and results are only taken when the specimens are in a state of equilibrium defined as a rate of change of less than 3% per hour. If misbehaving fabrics are meeting this requirement, then they don't need to be repositioned. The method implies that the test is run until the equilibrium requirement is met and then the results are taken. The new Note 6 is not needed if these instructions are followed.

Specimens will distort dimensionally because under the conditions of the test they swell because they absorb and hold water, somewhat akin to a thin sponge. When this happens they gain weight. Even though the THL test does not measure this weight gain, it is known that heavier weight garments are detrimental to heat stress relief. Specimens that behave this way should not be preferentially treated to their advantage.

Misbehaving specimens really means that the specimens are growing in the x-y plane causing them to wrinkle, curl, become wavy, etc. Re-positioning and re-smoothing them really means they are stretched to lay flat again. By stretching, they are caused to be thinner and more open, i.e., not like they really appear in use. This stretching will apply to not only the membrane but to the substrate on which it is attached, making it also thinner and more open. Thinner, more open will mean higher THL values. So these materials are actually advantaged by this procedure. This bias cannot be resolved by adjusting the preconditioning for all specimens.

And finally I would speak in opposition to the contention that the adoption of Note 6 is needed because it is difficult or impossible to meet the 10% variability constraint in the method when testing these materials. This contention misrepresents the method. The method itself addresses this difficulty. If, after testing 3 specimens, there is an individual result outside +/- 10% of the average, then that result shall be replaced with the result of a new specimen. If, after testing the new specimen, there is still an individual result outside +/- 10% of the average, then the results of 3 new specimens shall be included with the results of the first 4 and the average of all 7 specimens will be used as the result. So the method already gives the instructions how to deal with

specimens that are highly variable. Note 6 is not needed to resolve this difficulty.

Sanders, S. I agree with Mr. D. Gohlke's comment(s) (and negative vote) on the NFPA 1951 ROC and would therefore like to change my vote to "Negative," with Mr. Gohlke's comments as my substantiation.

Mr. Gohlke wrote:

Other TC's have accepted this comment into NFPA 1992, NFPA 1994 and NFPA 1971. As a matter of consistency and harmonization, this committee should reconsider and accept this comment too. Especially in light of the fact that this committee was not unified and almost equally divided on the subject. It would be odd to have only NFPA 1951 compliant products evaluated with the procedures allowed by Note 6 in ASTM F 1868 and not others. It would create confusion in the market when comparing and interpreting THL values generated by two different protocols.

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there is an individual result outside +/- 10% of the average, then that result shall be replaced with the result of a new specimen. If, after testing the new specimen, there is still as individual result outside +/- 10% of the average, then the results of 3 new specimens shall be included with the results of the first 4 and the average of all 7 specimens will be used as the result. So the method already gives the instructions how to deal with specimens that are highly variable. Note 6 is not needed to resolve this difficulty.

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**1951-54** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.14.5.4** (Log # 30 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-55** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.19.2.2 and 8.20.2.2** (Log # 31 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-56** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.24.3.3** (Log # 32 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-57** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.24.6.4** (Log # 33 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-58** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.26.2.1, 8.26.2.2, 8.27.2.1, and 8.27.2.2** (Log # 34 )

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**Not Returned****Byrne, C.****Reall, J.**

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**1951-59** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.27.4** (Log # 35 )

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Not Returned

**Byrne, C.****Reall, J.**

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**1951-60** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.28 Preprint** (Log # CC15)

Not Returned

**Byrne, C.****Reall, J.**

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**1951-61** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.31.4, 8.31.5 Preprint** (Log # CC8)

Not Returned

**Byrne, C.****Reall, J.**

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**1951-62** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.31.4.1 and A.8.31.4.1** (Log # 36)

Not Returned

**Byrne, C.****Reall, J.**

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**1951-63** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.32.4.1** (Log # 41)

Not Returned

**Byrne, C.****Reall, J.**

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**1951-64** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.4.2** (Log # 28)

Not Returned

**Byrne, C.****Reall, J.**

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**1951-65** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.4.3** (Log # 29)

Not Returned

**Byrne, C.**

**Document # 1951**

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**Reall, J.**

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**1951-66** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.44** (Log # 52 )**Not Returned****Byrne, C.****Reall, J.**

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**1951-67** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.45** (Log # 51 )**Not Returned****Byrne, C.****Reall, J.**

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**1951-68** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**8.46.2.2 and 8.47.2.2** (Log # 27 )**Not Returned****Byrne, C.****Reall, J.**

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**1951-69** Eligible To Vote:19 Affirmative: 17 Negative: 0 Abstain: 0 Not Returned: 2**A.1.2.2.3** (Log # 37 )**Not Returned****Byrne, C.****Reall, J.**