Standards Council Meeting

Boston Marriott Quincy
1000 Marriott Drive
Quincy, MA  02169
(617) 472-1000
August 5-7, 2019

<p>| 19-8-1 | Act on the issuance of NFPA 25, <em>Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems</em>, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with two amendments and no appeals. |
| 19-8-1-a | CAM 25-4: Accept an Identifiable Part of Public Comment No. 40. CAM 25-4 passed on the floor of the NFPA Technical Meeting. <strong>PASSED</strong> TC Ballot – 34 voting members/24 agree/8 disagree/0 abstained/2 ballots not returned. See Attachment 19-8-1-a |
| 19-8-1-b | CAM 25-5: Accept Public Comment No. 60. CAM 25-5 passed on the floor of the NFPA Technical Meeting. <strong>FAILED</strong> TC Ballot – 34 voting members/15 agree/17 disagree/0 abstained/2 ballots not returned. See Attachment 19-8-1-b |
| 19-8-2 | Act on the issuance of NFPA 58, <em>Liquefied Petroleum Gas Code</em>, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with one amendment and no appeals. |
| 19-8-2-a | CAM 58-1: Reject Second Revision No. 69. CAM 58-1 passed on the floor of the NFPA Technical Meeting. <strong>FAILED</strong> TC Ballot – 32 voting members/10 agree/18 disagree/0 abstained/4 ballots not returned. See Attachment 19-8-2-a |
| 19-8-3 | Act on the issuance of NFPA 70, <em>National Electrical Code®</em>, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with ten amendment and 36 appeals. |
| 19-8-3-a | Appeal of D. Mikat of Toyota Motor North America, requesting the Standards Council Overturn the Association Action and Reject an Identifiable Part of Second Revision No.7891 (CAM 70-1). This CAM failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-a |
| 19-8-3-a-1 | Comment received by R. Boyce, Chair of Panel 1 of the NEC, regarding appeal on CAM 70-1. See Attachment 19-8-3-a-1 |
| 19-8-3-a-2 | Comment received by John Kovacik on behalf of the NEC Correlating Committee regarding appeal on Multiple CAMs. See Attachment 19-8-3-a-2 |
| 19-8-3-a-3 | Comment received by S. Cline, Chair of Panel 12 of the NEC, on appeals regarding CAM 70-1. See Attachment 19-8-3-a-3 |
| 19-8-3-b | Appeal of D. Mikat of Toyota Motor North America, requesting the Standards Council Overturn the Association Action and Reject an Identifiable Part of Second Revision No. 7776, including any related portions of First Revision No. 8385 (CAM 70-2). This CAM failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-b |
| 19-8-3-b-1 | Comment received by S. Cline, Chair of Panel 12 of the NEC, on appeals regarding CAM 70-2. See Attachment 19-8-3-a-3 for comment content. |</p>
<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
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<tbody>
<tr>
<td>19-8-3-c</td>
<td><strong>APPEAL</strong> Appeal of D. Liu of American Honda Motor Co., Inc. (on behalf of 23 Automotive Manufacturers, the Automotive Alliance, Global Automakers, and SAE International), requesting the NFPA Standards Council overturn the Association Action and Accept Public Comment No. 1482 (CAM 70-3). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-c</td>
</tr>
<tr>
<td>19-8-3-c-1</td>
<td>Comment received by S. Cline, Chair of Panel 12 of the NEC, on appeals regarding CAM 70-1. See Attachment 19-8-3-a-3</td>
</tr>
<tr>
<td>19-8-3-d</td>
<td><strong>APPEAL</strong> Appeal of H. Herndon of PEARL, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 8072 (CAM 70-4). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-d</td>
</tr>
<tr>
<td>19-8-3-d-1</td>
<td>Comment received by R. Boyce, Chair of Panel 1 of the NEC, regarding appeal on CAM 70-4. See Attachment 19-8-3-d-1</td>
</tr>
<tr>
<td>19-8-3-d-2</td>
<td>Comment received by John Kovacik on behalf of the NEC Correlating Committee regarding appeals on Multiple CAMs. See Attachment 19-8-3-d-2</td>
</tr>
<tr>
<td>19-8-3-d-3</td>
<td>Seven comments was received on the Appeal of H. Herndon (CAM 70-4)(5 Support/2 Oppose) See Attachment 19-8-3-d-3</td>
</tr>
<tr>
<td>19-8-3-d-4</td>
<td>Comment received by L. Little, Chair of Panel 13 of the NEC, regarding appeal on CAM 70-4 (Oppose). See Attachment 19-8-3-d-4</td>
</tr>
<tr>
<td>19-8-3-e</td>
<td><strong>APPEAL</strong> Appeal of T. Bishop of EASA, requesting the NFPA Standards Council overturn the Association Action and Reject an Identifiable Part of Second Correlating Revision No. 71 (CAM 70-5). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-e</td>
</tr>
<tr>
<td>19-8-3-e-1</td>
<td>Comment received by R. Boyce, Chair of Panel 1 of the NEC, regarding appeal on CAM 70-5. See Attachment 19-8-3-e-1</td>
</tr>
<tr>
<td>19-8-3-f</td>
<td><strong>APPEAL</strong> Appeal of R. Holub of DuPont Manufacturing Infrastructure Group, requesting the NFPA Standards Council overrule the Association Action and Reject an Identifiable Part of Second Revision No. 8104 (CAM 70-7). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-f</td>
</tr>
<tr>
<td>19-8-3-f-1</td>
<td>Comment received by Kenneth Boyce, Chair of Panel 1 of the NEC, regarding the Appeal on CAM 70-7. See Attachment 19-8-3-f-1</td>
</tr>
<tr>
<td>19-8-3-g</td>
<td>CAM 70-11: Accept an Identifiable Part of Public Comment No. 1381. CAM 70-11 passed on the floor of the NFPA Technical Meeting. <strong>FAILED</strong> Panel Ballot – 14 voting members/7 agree/7 disagree/0 abstained/0 ballots not returned and <strong>Failing/Passing CC Ballot – xx voting members/xx agree/xx disagree/xx abstained/xx ballots not returned</strong>. See Attachment 19-8-3-g</td>
</tr>
<tr>
<td>19-8-3-h</td>
<td><strong>APPEAL</strong> Appeal of H. Herndon of PEARL, requesting the NFPA Standards Council overturn the Association Action and Reject an Identifiable Part of Second Revision No. 7657 (CAM 70-12). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-h</td>
</tr>
<tr>
<td>19-8-3-i</td>
<td><strong>APPEAL</strong> Appeal of H. Herndon of PEARL and C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7657 (CAM 70-13). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-i</td>
</tr>
<tr>
<td>19-8-3-i-1</td>
<td>Comment received by M. Hilbert, Chair of Panel 2 of the NEC, regarding the appeals related to reconditioned equipment. See Attachment 19-8-3-i-1</td>
</tr>
<tr>
<td>19-8-3-j</td>
<td>CAM 70-14: Reject Second Revision No. 8074. CAM 70-14 passed on the floor of the NFPA Technical Meeting. <strong>No Ballot Necessary</strong>. See Attachment 19-8-3-j</td>
</tr>
<tr>
<td>19-8-3-k</td>
<td><strong>APPEAL</strong> Appeal of H. Herndon of PEARL and C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7974 (CAM 70-15).</td>
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<td>19-8-3-l</td>
<td>APPEAL</td>
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<td>19-8-3-m</td>
<td>CAM 70-22: Accept an Identifiable Part of Public Comment No. 1406. CAM 70-22 passed on the floor of the NFPA Technical Meeting. <strong>FAILED</strong> Panel Ballot – 13 voting members/4 agree/7 disagree/0 abstained/2 ballots not returned and <strong>PASSING/FAILING</strong> CC Ballot – xx voting members/xx agree/xx disagree/xx abstained/xx ballots not returned.</td>
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<td>19-8-3-m-1</td>
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<td>19-8-3-m-2</td>
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<td>19-8-3-q</td>
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<td>19-8-3-q-1</td>
<td>Comment received by D. Humphrey, Chair of Panel 9 of the NEC, on appeals regarding reconditioned equipment.</td>
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<td>19-8-3-r</td>
<td>APPEAL</td>
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<td>19-8-3-v-8</td>
<td>Appeal of D. Mulvaney, Kampgrounds of America, requesting the NFPA Standards Council overturn the Association Action and Accept Second Correlating Revision No. 30 (CAM 70-36). This Motion passed the floor of the NFPA Technical Meeting and failed panel ballot. 19-8-3-v-8</td>
</tr>
<tr>
<td>19-8-3-v-9</td>
<td>Appeal of R. Gingras, Sutton Falls Camping Area, Inc., requesting the NFPA Standards Council overturn the Association Action and Accept Second Correlating Revision No. 30 (CAM 70-36). This Motion passed the floor of the NFPA Technical Meeting and failed panel ballot. 19-8-3-v-9</td>
</tr>
<tr>
<td>19-8-3-v-10</td>
<td>Appeal of R. Miller of Future Owner of Small Country Campground, requesting the NFPA Standards Council overturn the Association Action and Accept Second Correlating Revision No. 30 (CAM 70-36). This Motion passed the floor of the NFPA Technical Meeting and failed panel ballot. See Attachment 19-8-3-v-10</td>
</tr>
<tr>
<td>19-8-3-v-11</td>
<td>Appeal of F. Hartwell of Hartwell Electrical Services, Inc., requesting the NFPA Standards Council overturn the Association Action and Accept Second Correlating Revision No. 30 (CAM 70-36). This Motion passed the floor of the NFPA Technical Meeting and failed panel ballot. See Attachment 19-8-3-v-11</td>
</tr>
<tr>
<td>19-8-3-v-11-a</td>
<td>Comment received by K. Lofland, Chair of Panel 7 of the NEC, on appeal regarding CAM 70-36. See Attachment 19-8-3-v-11-a</td>
</tr>
<tr>
<td>19-8-3-v-12</td>
<td>Appeal of J. Mickelson, J&amp;H RV Park, requesting the NFPA Standards Council overturn the Association Action and Accept Second Correlating Revision No. 30 (CAM 70-36). This Motion passed the floor of the NFPA Technical Meeting and failed panel ballot. See Attachment 19-8-3-v-12</td>
</tr>
<tr>
<td>19-8-3-w</td>
<td>Appeal of D. Liu of American Honda Motor Co., Inc. (on behalf of 23 Automotive Manufacturers, the Automotive Alliance, Global Automakers, and SAE International, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7783, including any related portions of First Revision No. 8597 (CAM 70-37). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-w</td>
</tr>
<tr>
<td>19-8-3-w-1</td>
<td>Comment received by S. Cline, Chair of Panel 12 of the NEC, on appeals regarding CAM 70-37. See Attachment 19-8-3-w-1 for comment content.</td>
</tr>
<tr>
<td>19-8-3-x</td>
<td>Appeal of D. Burkett of Ford Motor Company, (on behalf of 23 Automotive Manufacturers, the Automotive Alliance, Global Automakers, and SAE International), requesting the NFPA Standards Council overturn the Association Action and Accept Public Comment No. 1590 (CAM 70-38). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-x</td>
</tr>
<tr>
<td>19-8-3-x-1</td>
<td>Comment received by S. Cline, Chair of Panel 12 of the NEC, on appeals regarding CAM 70-38. See Attachment 19-8-3-x-1 for comment content.</td>
</tr>
<tr>
<td>19-8-3-y</td>
<td>Appeal of D. Liu, American Honda Motor Co., Inc. (on behalf of 23 Automotive Manufacturers, the Automotive Alliance, Global Automakers, and SAE International), requesting the NFPA Standards Council overturn the Association Action and Accept an Identifiable Part of Public Comment No. 1480. (CAM 70-40). This Motion was not pursued on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-y</td>
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<tr>
<td>19-8-3-y-1</td>
<td>Comment received by S. Cline, Chair of Panel 12 of the NEC, on appeals regarding CAM 70-40. See Attachment 19-8-3-y-1 for comment content.</td>
</tr>
<tr>
<td>19-8-3-z</td>
<td>Appeal of H. Herndon of PEARL and C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7522 (CAM 70-41).</td>
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<tr>
<td>Motion Number</td>
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<td>19-8-3-aa</td>
<td>Appeal of H. Herndon of PEARL and C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7584 (CAM 70-42). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-aa (For full Appeal see 19-8-3-i)</td>
</tr>
<tr>
<td>19-8-3-bb</td>
<td>Appeal of H. Herndon of PEARL and C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7586 (CAM 70-43). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-bb (For full Appeal see 19-8-3-i)</td>
</tr>
<tr>
<td>19-8-3-cc</td>
<td>Appeal of H. Herndon of PEARL and C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject an Identifiable Part of Second Revision No. 7588 (CAM 70-44). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-cc (For full Appeal see 19-8-3-i)</td>
</tr>
<tr>
<td>19-8-3-dd</td>
<td>CAM 70-45: Reject Second Revision No. 8159 and any Related Portion of First Revision No. 8608. CAM 70-45 passed on the floor of the NFPA Technical Meeting. <strong>No Ballot Necessary</strong> See Attachment 19-8-3-dd</td>
</tr>
<tr>
<td>19-8-3-dd-1</td>
<td>Appeal of Jason Fisher of Solar Energy Industries Association, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 8159 and any related portions of First Revision No. 8608 (CAM 70-45). This Motion passed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-dd-1</td>
</tr>
<tr>
<td>19-8-3-ee</td>
<td>CAM 70-46: Accept an Identifiable Part of Public Comment No. 315. (CAM 70-46) passed on the floor of the NFPA Technical Meeting. <strong>FAILED</strong> Panel Ballot – 18 voting members/4 agree/11 disagree/0 abstained/3 ballots not returned and <strong>PASSING/FAILING</strong> CC Ballot – xx voting members/xx agree/xx disagree/xx abstained/xx ballots not returned. See Attachment 19-8-3-ee</td>
</tr>
<tr>
<td>19-8-3-ee-1</td>
<td>Appeal of Jason Fisher of Solar Energy Industries Association, requesting the NFPA Standards Council overturn the Association Action and Accept an Identifiable Part of Public Comment No. 315 CAM 70-46. This Motion passed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-ee-1</td>
</tr>
<tr>
<td>19-8-3-ee-1-a</td>
<td>Comment on Appeal of J. Fisher (CAM 70-46) (1 Oppose). See Attachment 19-8-3-ee-1-a</td>
</tr>
<tr>
<td>19-8-3-ff</td>
<td>Appeal of H. Herndon of PEARL and C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7517 (CAM 70-47). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-ff (For full Appeal see 19-8-3-i)</td>
</tr>
<tr>
<td>19-8-3-gg-1</td>
<td>Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council overturn the ballot results of the NEC Panel 3 on CAM 70-48 to Accept Public Comment No. 501. See Attachment 19-8-3-gg-1</td>
</tr>
<tr>
<td>19-8-3-gg-1-a</td>
<td>Comment received by R. Jones, CMP 3 Chair, regarding the appeal on CAM 70-48. See Attachment 19-8-3-gg-1-a</td>
</tr>
</tbody>
</table>
CAM 70-49: Accept Public Comment No. 500. CAM 70-49 passed on the floor of the NFPA Technical Meeting. FAILED Panel Ballot – 17 voting members/8 agree/5 disagree/0 abstained/4 ballots not returned and PASSING/FAILING CC Ballot – xx voting members/xx agree/xx disagree/xx abstained/xx ballots not returned. See Attachment 19-8-3-hh

Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council overturn the ballot results of the NEC Panel 3 on CAM 70-49 to Accept Public Comment No. 500. See Attachment 19-8-3-hh-1

Comment received by R. Jones, CMP 3 Chair, regarding the appeal on CAM 70-49. See Attachment 19-8-3-hh-1-a

Appeal of C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Association Action and Reject Second Revision No. 7509 (CAM 70-50). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-ii

CAM 70-51: Accept Public Comment No. 516. CAM 70-51 passed on the floor of the NFPA Technical Meeting. FAILED Panel Ballot – 18 voting members/8 agree/9 disagree/0 abstained/1 ballots not returned and PASSING/FAILING CC Ballot – xx voting members/xx agree/xx disagree/xx abstained/xx ballots not returned. See Attachment 19-8-3-jj

Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council overturn the ballot results of the NEC Panel 16 on CAM 70-51 to Accept Public Comment No. 5160. See Attachment 19-8-3-jj-1

Comment received by T. Moore, Chair of Panel 16 of the NEC, on appeal regarding CAM 70-51. See Attachment 19-8-3-jj-1-a

Appeal of J. Peterkin, representing the Health Care Section, requesting the NFPA Standards Council reject First Revision No. 7977 because this requirement is not under the jurisdiction of NFPA 70. See Attachment 19-8-3-kk

Comment received by M. Hilbert, Chair of Panel 2 of the NEC, on appeal of J. Peterkin. See Attachment 19-8-3-kk-1

Appeal of J. Peterkin, representing the Health Care Section, requesting the NFPA Standards Council reject Second Correlating Revision No. 38 because this requirement is not under the jurisdiction of NFPA 70. See Attachment 19-8-3-ll

Appeal of J. Peterkin, representing the Health Care Section, requesting the NFPA Standards Council reject Second Correlating Revision No. 39 because this requirement is not under the jurisdiction of NFPA 70. See Attachment 19-8-3-mm

Appeal of C. Hunter of Cerro Wire, requesting the NFPA Standards Council overturn the Panel Action and Reject Second Revision No. 8011. There was no motion filed and therefore was not presented on the floor of the NFPA Technical Meeting. See Attachment 19-8-3-nn

Act on the issuance of NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with no amendments and no appeals. See Attachment 19-8-4

Act on the issuance of NFPA 302, Standard for Fire Protection for Pleasure and Commercial Motor Craft, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with seven amendments and no appeals. See Attachment 19-8-5

CAM 302-1: Accept Public Comment No. 3. CAM 302-1 passed on the floor of the NFPA Technical Meeting. FAILED TC Ballot – 19 voting members/10 agree/7 disagree/1 abstained/1 ballot not returned. See Attachment 19-8-5-a
| 19-8-5-a-1 | APPEAL | Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council to overturn the ballot results of the Technical Committee on Motor Craft on CAM 302-1 to Accept Public Comment No. 3. See Attachment 19-8-5-a-1 |
| 19-8-5-a-1-a | Comment received by John McDevitt, Chair, NFPA 302, regarding the appeal of M. Hirschler on CAM 302-1 on NFPA 302. See Attachment 19-8-5-a-1-a |
| 19-8-5-b | CAM 302-2: Accept Public Comment No. 4. CAM 302-2 passed on the floor of the NFPA Technical Meeting. **FAILED** TC Ballot – 19 voting members/10 agree/7 disagree/1 abstained/1 ballot not returned. See Attachment 19-8-5-b |
| 19-8-5-b-1 | APPEAL | Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council to overturn the ballot results of the Technical Committee on Motor Craft on CAM 302-2 to Accept Public Comment No. 4. See Attachment 19-8-5-b-1 |
| 19-8-5-b-1-a | Comment received by John McDevitt, Chair, NFPA 302, regarding the appeal of M. Hirschler on CAM 302-2 on NFPA 302. See Attachment 19-8-5-a-1-a for comment content |
| 19-8-5-c | CAM 302-3: Accept an Identifiable Part of Public Comment No. 5. CAM 302-3 passed on the floor of the NFPA Technical Meeting. **FAILED** TC Ballot – 19 voting members/10 agree/7 disagree/1 abstained/1 ballot not returned. See Attachment 19-8-5-c |
| 19-8-5-c-1 | APPEAL | Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council to overturn the ballot results of the Technical Committee on Motor Craft on CAM 302-3 to Accept an Identifiable Part of Public Comment 5. See Attachment 19-8-5-a-1 for Content of Appeal |
| 19-8-5-c-1-a | Comment received by John McDevitt, Chair, NFPA 302, regarding the appeal of M. Hirschler on CAM 302-3 on NFPA 302. See Attachment 19-8-5-a-1-a for comment content |
| 19-8-5-d | CAM 302-4: Accept an Identifiable Part of Public Comment No. 5. CAM 302-4 passed on the floor of the NFPA Technical Meeting. **FAILED** TC Ballot – 19 voting members/9 agree/7 disagree/2 abstained/1 ballot not returned. See Attachment 19-8-5-d |
| 19-8-5-d-1 | APPEAL | Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council to overturn the ballot results of the Technical Committee on Motor Craft on CAM 302-4 to Accept an Identifiable Part of Public Comment No. 5. See Attachment 19-8-5-b-1 for Content of Appeal |
| 19-8-5-d-1-a | Comment received by John McDevitt, Chair, NFPA 302, regarding the appeal of M. Hirschler on CAM 302-4 on NFPA 302. See Attachment 19-8-5-a-1-a for comment content |
| 19-8-5-e | CAM 302-5: Accept Public Comment No. 6. CAM 302-5 passed on the floor of the NFPA Technical Meeting. **FAILED** TC Ballot – 19 voting members/10 agree/7 disagree/1 abstained/1 ballot not returned. See Attachment 19-8-5-e |
| 19-8-5-e-1 | APPEAL | Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council to overturn the ballot results of the Technical Committee on Motor Craft on CAM 302-5 to Accept Public Comment No. 6. See Attachment 19-8-5-a-1 for Content of Appeal |
| 19-8-5-e-1-a | Comment received by John McDevitt, Chair, NFPA 302, regarding the appeal of M. Hirschler on CAM 302-5 on NFPA 302. See Attachment 19-8-5-a-1-a for comment content |
| 19-8-5-f | CAM 302-6: Accept an Identifiable Part of Public Comment No. 7. CAM 302-6 passed on the floor of the NFPA Technical Meeting. **PASSED** TC Ballot – 19 voting members/15 agree/2 disagree/1 abstained/1 ballots not returned. See Attachment 19-8-5-f |
| 19-8-5-g | CAM 302-7: Accept an Identifiable Part of Public Comment No. 7. CAM 302-7 passed on the floor of the NFPA Technical Meeting. **FAILED** TC Ballot – 19 voting members/9 agree/7 disagree/2 abstained/1 ballot not returned. See Attachment 19-8-5-g |
| 19-8-5-g-1 | APPEAL | Appeal of M. Hirschler of GBH International, requesting the NFPA Standards Council overturn the ballot results of the Technical Committee on Motor Craft on CAM 302-7 to Accept an Identifiable Part of Public Comment No. 7 See Attachment 19-8-5-a-1 for Content of Appeal |
| 19-8-5-g-1-a | Comment received by John McDevitt, Chair, NFPA 302, regarding the appeal of M. Hirschler on CAM 302-7 on NFPA 302. See Attachment 19-8-5-a-1-a for comment content |
| 19-8-6 | Act on the issuance of NFPA 502, *Standard for Road Tunnels, Bridges, and Other Limited Access Highways*, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with no amendments and no appeals. See Attachment 19-8-6 |
| 19-8-7 | Act on the issuance of NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with no amendments and no appeals. See Attachment 19-8-7 |
| 19-8-8 | Act on the issuance of NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials*, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with no amendments and no appeals. See Attachment 19-8-8 |
| 19-8-9 | Act on the issuance of NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems*, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with one amendment and two appeals. |
| 19-8-9-a | CAM 855-1: Accept Public Comment Nos. 912 and 454. CAM 855-1 passed on the floor of the NFPA Technical Meeting. FAILED TC Ballot – 45 voting members/17 agree/23 disagree/1 abstained/4 ballots not returned. See Attachment 19-8-9-a |
| 19-8-9-a-1 | APPEAL | Appeal from J. Houston of Southern Company Services, requesting the NFPA Standards Council overturn the ballot results of the Technical Committee on Energy Storage Systems on CAM 855-1 to Accept Part of Public Comment Nos. 912 and 454. See Attachment 19-8-9-a-1 |
| 19-8-9-b | APPEAL | Appeal of N. West of Southern Company Services, requesting the NFPA Standards Council overturn the Association Action and Reject an Identifiable Part of Second Revision No. 75 (CAM 855-8). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-9-b |
| 19-8-9-c | APPEAL | Appeal of B. Cantor of TPI Engineering, requesting the NFPA Standards Council overturn the Association Action and Reject an Identifiable Part of Second Revision No. 75 (CAM 855-8). This Motion failed on the floor of the NFPA Technical Meeting. See Attachment 19-8-9-c |
| 19-8-9-c-1 | Comment received by James Biggins, Chair, TC on Energy Storage Systems, regarding appeal on CAM 855-8. See Attachment 19-8-9-c-1 |
| 19-8-9-c-2 | One comment was received on the Appeal of B. Cantor (CAM 855-8)(1 Oppose) See Attachment 19-8-9-c-2 |
| 19-8-10 | Act on the issuance of NFPA 1851, *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, with an issuance date of August 5, 2019 and an effective date of August 25, 2019, as acted on at the NFPA Technical Meeting, with one amendment and no appeals. |
| 19-8-10-a | CAM 1851-1: Reject Second Revision No. 37. CAM 1851-1 passed on the floor of the NFPA Technical Meeting. NO BALLOT NECESSARY See Attachment 19-8-10-a |
### 19-8-12

**Annual 2019 Revision Cycle Consent Standards** that did not receive NITMAMs, were letter balloted by the Council with an **issuance date of April 28, 2019** and an **effective date of May 18, 2019**:

- **NFPA 55**,  *Compressed Gases and Cryogenic Fluids Code*
- **NFPA 405**,  *Standard for the Recurring Proficiency of Airport Fire Fighters*
- **NFPA 412**,  *Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment*
- **NFPA 414**,  *Standard for Aircraft Rescue and Fire-Fighting Vehicles*
- **NFPA 556**,  *Guide on Methods for Evaluating Fire Hazard to Occupants of Passenger Road Vehicles*
- **NFPA 557**,  *Standard for Determination of Fire Loads for Use in Structural Fire Protection Design*
- **NFPA 780**,  *Standard for the Installation of Lightning Protection Systems*
- **NFPA 820**,  *Standard for Fire Protection in Wastewater Treatment and Collection Facilities*
- **NFPA 1082**,  *Standard for Facilities Fire and Life Safety Director Professional Qualifications*
- **NFPA 1300**,  *Standard on Community Risk Assessment and Community Risk Reduction Plan Development (New)*
- **NFPA 1452**,  *Guide for Training Fire Service Personnel to Conduct Community Risk Reduction for Residential Occupancies*
- **NFPA 1710**,  *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*
- **NFPA 1720**,  *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments*
- **NFPA 2113**,  *Standard on Selection, Care, Use, and Maintenance of Flame-Resistant Garments for Protection of Industrial Personnel Against Short-Duration Thermal Exposures from Fire*

**Annual 2019 Revision Cycle Consent Standards**, with **custom** schedules, that did not receive NITMAMs, were letter balloted by the Council with an **issuance date of June 10, 2019** and an **effective date of June 30, 2019**:

- **NFPA 2**,  *Hydrogen Technologies Code*
- **NFPA 78**,  *Guide on Electrical Inspections (New)*
- **NFPA 451**,  *Guide for Community Healthcare Programs*
- **NFPA 1078**,  *Standard for Electrical Inspector Professional Qualifications (New)*
- **NFPA 1936**,  *Standard on Rescue Tools*

### 19-8-13


19-8-13-a  **Text** of proposed TIA No. 1423. See Attachment 19-8-13-a

19-8-13-b  **Ballot results of TIA No. 1423. FAILED** TC Ballot on both technical merit and emergency nature – 26 voting members/8 agree on technical merit/14 disagree/2 abstained/8 agree on emergency nature/15 disagree/1 abstained/2 ballots not returned. See Attachment 19-8-13-b

19-8-13-c  **One** comment was received. (1 Support w/editorial comment). See Attachment 19-8-13-c
**19-8-13-d APPEAL**  

**19-8-14**  
Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Table 14.2.8.2.1 of the 2019 Edition of NFPA 13, *Standard for the Installation of Sprinkler Systems*, (TIA No. 1416).

<table>
<thead>
<tr>
<th>19-8-14-a</th>
<th><strong>Text</strong> of proposed TIA No. 1416. See Attachment 19-8-14-a</th>
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<tbody>
<tr>
<td>19-8-14-b</td>
<td>Ballot results of TIA No. 1416. <strong>PASSED</strong> TC Ballot on both technical merit and emergency nature – 33 voting members/27 agree on technical merit/1 disagree/0 abstained/27 agree on emergency nature/1 disagree/0 abstained/5 ballots not returned. <strong>PASSED</strong> CC Ballot on both correlation and emergency nature – 20 voting members/18 agree on correlation/0 disagree/0 abstained/18 agree on emergency nature/0 disagree/0 abstained/2 ballots not returned. See Attachment 19-8-14-b</td>
</tr>
<tr>
<td>19-8-14-c</td>
<td>No comments were received.</td>
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**19-8-15**  

<table>
<thead>
<tr>
<th>19-8-15-a</th>
<th><strong>Text</strong> of proposed TIA No. 1456. See Attachment 19-8-15-a</th>
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</thead>
<tbody>
<tr>
<td>19-8-15-b</td>
<td>Ballot results of TIA No. 1456. <strong>FAILED</strong> TC Ballot on both technical merit and emergency nature – 23 voting members/6 agree on technical merit/12 disagree/0 abstained/6 agree on emergency nature/11 disagree/1 abstained/5 ballots not returned. See Attachment 19-8-15-b</td>
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<tr>
<td>19-8-15-c</td>
<td>No comments were received.</td>
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**19-8-16**  

<table>
<thead>
<tr>
<th>19-8-16-a</th>
<th><strong>Text</strong> of proposed TIA No. 1424. See Attachment 19-8-16-a</th>
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</thead>
<tbody>
<tr>
<td>19-8-16-b</td>
<td>Ballot results of TIA No. 1424. <strong>PASSED</strong> TC Ballot on both technical merit and emergency nature – 33 voting members/23 agree on technical merit/3 disagree/0 abstained/23 agree on emergency nature/3 disagree/0 abstained/7 ballots not returned. See Attachment 19-8-16-b</td>
</tr>
<tr>
<td>19-8-16-c</td>
<td>No comments were received.</td>
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**19-8-17**  
Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Article 210.8 and Informational Note No. 3(new) of the 2017 Edition of NFPA 70, *National Electrical Code*. See Attachment 19-8-17-a

<table>
<thead>
<tr>
<th>19-8-17-a</th>
<th><strong>Text</strong> of proposed TIA No. 1453. See Attachment 19-8-17-a</th>
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<tr>
<td>19-8-17-b</td>
<td>Ballot results of TIA No. 1453. <strong>PASSED</strong> Panel Ballot on both technical merit and emergency nature – 14 voting members/12 agree on technical merit/2 disagree/0 abstained/10 agree on emergency nature/4 disagree/0 abstained/0 ballots not returned. <strong>FAILED</strong> CC Ballot, passed Correlation Issue but failed Emergency Nature – 12 voting members/9 agree on correlation/3 disagree/0 abstained/7 agree on emergency nature/5 disagree/0 abstained/0 ballots not returned. See Attachment 19-8-17-b</td>
</tr>
<tr>
<td>19-8-17-c</td>
<td>Four comments were received. (3 Support, 1 Oppose) See Attachment 19-8-17-c</td>
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**19-8-18**  
Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Article 600.5(D)(2) of the Proposed 2020 Edition of NFPA 70, *National Electrical Code*. See Attachment 19-8-18-a

<table>
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<tr>
<th>19-8-18-a</th>
<th><strong>Text</strong> of proposed TIA No. 1426. See Attachment 19-8-18-a</th>
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<tbody>
<tr>
<td>19-8-18-b</td>
<td>Ballot results of TIA No. 1426. <strong>FAILED</strong> Panel Ballot on both technical merit and emergency nature – 11 voting members/8 agree on technical merit/3 disagree/0 abstained/8 agree on emergency nature/0 disagree/0 abstained/3 ballots not returned. See Attachment 19-8-18-b</td>
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</table>
emergency nature/3 disagree/0 abstained/0 ballots not returned. **FAILED** CC Ballot, passed Correlation Issue but failed Emergency Nature –12 voting members/9 agree on correlation/3 disagree/0 abstained/5 agree on emergency nature/7 disagree/0 abstained/0 ballots not returned. See Attachment 19-8-18-b

19-8-18-c Three comments was received. (1 Support, 2 Oppose) See Attachment 19-8-18-c

19-8-19 Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Article 725.121(C) of the Proposed 2020 Edition of NFPA 70, *National Electrical Code*® (TIA No. 1438).

19-8-19-a Text of proposed TIA No. 1438. See Attachment 19-8-19-a

19-8-19-b Ballot results of TIA No. 1438. **PASSED** Panel Ballot on both technical merit and emergency nature – 17 voting members/14 agree on technical merit/2 disagree/0 abstained/14 agree on emergency nature/2 disagree/0 abstained/1 ballots not returned. **PASSED** CC Ballot on both correlation and emergency nature –12 voting members/11 agree on correlation/0 disagree/0 abstained/11 agree on emergency nature/0 disagree/0 abstained/1 ballot not returned. See Attachment 19-8-19-b

19-8-19-c No comments were received.


19-8-20-a Text of proposed TIA No. 1442. See Attachment 19-8-20-a

19-8-20-b Ballot results of TIA No. 1442. **PASSED** Panel Ballot on both technical merit and emergency nature – 14 voting members/13 agree on technical merit/1 disagree/0 abstained/13 agree on emergency nature/1 disagree/0 abstained/0 ballots not returned. **PASSED** CC Ballot on both correlation and emergency nature –12 voting members/11 agree on correlation/0 disagree/0 abstained/11 agree on emergency nature/0 disagree/0 abstained/1 ballot not returned. See Attachment 19-8-20-b

19-8-20-c Three comments were received. (1 Support, 3 Oppose) See Attachment 19-8-20-c

19-8-21 Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Article 725.121(C) of the Proposed 2020 Edition of NFPA 70, *National Electrical Code*® (TIA No. 1444).

19-8-21-a Text of proposed TIA No. 1444. See Attachment 19-8-21-a

19-8-21-b Ballot results of TIA No. 1444. **PASSED** Panel Ballot on both technical merit and emergency nature – 17 voting members/12 agree on technical merit/3 disagree/0 abstained/11 agree on emergency nature/3 disagree/1 abstained/2 ballots not returned. **FAILED** CC Ballot, passed Correlation Issue but failed Emergency Nature –12 voting members/12 agree on correlation/0 disagree/0 abstained/5 agree on emergency nature/7 disagree/0 abstained/0 ballots not returned. See Attachment 19-8-21-b

19-8-21-c Two comments were received. (1 Support, 1 Oppose) See Attachment 19-8-21-c

19-8-21-d APPEAL Appeal of C. Jones of Cisco Systems, requesting the NFPA Standards Council overturn the Correlating Committee action and issue TIA No. 1444, NFPA 70, *National Electrical Code*. See Attachment 19-8-21-d

19-8-21-d-1 Comment received by M. Johnston, NEC Correlating Chair, regarding the appeal of C. Jones on TIA No. 1444 on NFPA 70. See Attachment 19-8-21-d-1

19-8-21-d-2 Comment received by Robert Jones, Panel 3 Chair, regarding the appeal of C. Jones on TIA No. 1444 on NFPA 70. See Attachment 19-8-21-d-2

19-8-21-d-3 Two comment received on Appeal. (2 Support) See Attachment 19-8-21-d-3
| 19-8-22 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Article 240.67(C) and Informational Note (new) of the Proposed 2020 Edition of NFPA 70, *National Electrical Code*® (TIA No. 1451). |
| 19-8-22-a | Text of proposed TIA No. 1451. See Attachment 19-8-22-a |
| 19-8-22-b | Ballot results of TIA No. 1451. PASSED Panel Ballot on both technical merit and emergency nature – 12 voting members/9 agree on technical merit/0 disagree/1 abstained/9 agree on emergency nature/0 disagree/1 abstained/2 ballots not returned. PASSED CC Ballot on both correlation and emergency nature –12 voting members/11 agree on correlation/0 disagree/0 abstained/11 agree on emergency nature/0 disagree/0 abstained/1 ballots not returned. See Attachment 19-8-22-b |
| 19-8-22-c | Two comments were received. (2 Oppose) See Attachment 19-8-22-c |
| 19-8-23 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Article 240.87(C) and Informational Note (new) of the Proposed 2020 Edition of NFPA 70, *National Electrical Code*® (TIA No. 1452). |
| 19-8-23-a | Text of proposed TIA No. 1452. See Attachment 19-8-23-a |
| 19-8-23-b | Ballot results of TIA No. 1452. PASSED Panel Ballot on both technical merit and emergency nature – 12 voting members/9 agree on technical merit/0 disagree/1 abstained/9 agree on emergency nature/0 disagree/1 abstained/2 ballots not returned. PASSED CC Ballot on both correlation and emergency nature –12 voting members/11 agree on correlation/0 disagree/0 abstained/11 agree on emergency nature/0 disagree/0 abstained/1 ballots not returned. See Attachment 19-8-23-b |
| 19-8-23-c | No comments was received. |
| 19-8-24-a | Text of proposed TIA No. 1455. See Attachment 19-8-24-a |
| 19-8-24-b | Ballot results of TIA No. 1455. PASSED Panel Ballot on both technical merit and emergency nature – 14 voting members/13 agree on technical merit/0 disagree/0 abstained/13 agree on emergency nature/0 disagree/0 abstained/1 ballot not returned. PASSED CC Ballot on both correlation and emergency nature –12 voting members/11 agree on correlation/0 disagree/0 abstained/11 agree on emergency nature/0 disagree/0 abstained/1 ballot not returned. See Attachment 19-8-24-b |
| 19-8-24-c | One comment was received. (1 Support) See Attachment 19-8-24-c |
| 19-8-25 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Article 334.10(2) and (3) of the Proposed 2020 Edition of NFPA 70, *National Electrical Code*® (TIA No. 1458). |
| 19-8-25-a | Text of proposed TIA No. 1458. See Attachment 19-8-25-a |
| 19-8-25-b | Ballot results of TIA No. 1458. FAILED Panel Ballot on both technical merit and emergency nature – 13 voting members/4 agree on technical merit/6 disagree/3 abstained/3 agree on emergency nature/7 disagree/2 abstained/1 ballot not returned. FAILED CC Ballot, passed Correlation Issue but failed Emergency Nature –12 voting members/10 agree on correlation/2 disagree/0 abstained/3 agree on emergency nature/9 disagree/0 abstained/0 ballots not returned. See Attachment 19-8-25-b |
| 19-8-25-c | Seven comments were received. (5 Support, 2 Oppose) See Attachment 19-8-25-c |
| 19-8-26 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to delete Table 430.252 in its entirety of the Proposed 2020 Edition of NFPA 70, *National Electrical Code*® (TIA No. 1462). |
| 19-8-26-a | Text of proposed TIA No. 1462. See Attachment 19-8-26-a |
**19-8-26-b** Preliminary Ballot results of TIA No. 1462. **PASSING** Panel Ballot on both technical merit and emergency nature – 15 voting members/14 agree on technical merit/0 disagree/0 abstained/14 agree on emergency nature/0 disagree/0 abstained/1 ballots not returned. **PASSING** CC Ballot on both correlation and emergency nature –12 voting members/12 agree on correlation/0 disagree/0 abstained/0 ballots not returned. See Attachment 19-8-26-b

**19-8-26-c** Two comments were received. (2 Support) See Attachment 19-8-26-c

**19-8-27** Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Section 8.10.6 of the 2019 Edition of NFPA 86, *Standard for Ovens and Furnaces* (TIA No. 1439).

**19-8-27-a** Text of proposed TIA No. 1439. See Attachment 19-8-27-a

**19-8-27-b** Ballot results of TIA No. 1439. **FAILED** TC Ballot on both technical merit and emergency nature –35 voting members/13 agree on technical merit/15 disagree/2 abstained/14 agree on emergency nature/13 disagree/3 abstained/5 ballots not returned. See Attachment 19-8-27-b

**19-8-27-c** Twenty-three comments were received. (24 Support, 1 Oppose) See Attachment 19-8-27-c

**19-8-28** Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Section 8.5.1.9(3) of the 2019 Edition of NFPA 86, *Standard for Ovens and Furnaces* (TIA No. 1440).

**19-8-28-a** Text of proposed TIA No. 1440. See Attachment 19-8-28-a

**19-8-28-b** Ballot results of TIA No. 1440. **PASSED** TC Ballot on both technical merit and emergency nature – 35 voting members/24 agree on technical merit/8 disagree/1 abstained/27 agree on emergency nature/5 disagree/1 abstained/2 ballots not returned. See Attachment 19-8-28-b

**19-8-28-c** Three comments were received. (1 Support, 2 Oppose) See Attachment 19-8-28-c

**19-8-29** Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new paragraphs 7.2.12.1.1(4) (new) and 7.2.12.2.6(new) to the 2018 and Proposed 2021 Editions of NFPA 101, *Life Safety Code®* (TIA No. 1405).

**19-8-29-a** Text of proposed TIA No. 1405. See Attachment 19-8-29-a

**19-8-29-b** Ballot results of TIA No. 1405. **FAILED** TC Ballot, passed Technical Merit but failed Emergency Nature – 32 voting members/23 agree on technical merit/5 disagree/1 abstained/20 agree on emergency nature/9 disagree/0 abstained/3 ballots not returned. **FAILED** CC Ballot, passed on Correlation Issue but failed Emergency Nature –12 voting members/9 agree on correlation/2 disagree/0 abstained/5 agree on emergency nature/6 disagree/0 abstained/1 ballots not returned. See Attachment 19-8-29-b

**19-8-29-c** One comment was received. (1 Support) See Attachment 19-8-29-c

**19-8-30** Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new 15.2.2.2.4(3), revise (4), and renumber subsequent items of the 2018 Edition of NFPA 101, *Life Safety Code®* (TIA No. 1436).

**19-8-30-a** Text of proposed TIA No. 1436. See Attachment 19-8-30-a

**19-8-30-b** Ballot results of TIA No. 1436. **PASSED** TC Ballot on both technical merit and emergency nature – 23 voting members/15 agree on technical merit/4 disagree/0 abstained/15 agree on emergency nature/4 disagree/0 abstained/4 ballots not returned. **PASSED** CC Ballot on both correlation and emergency nature –11 voting members/7 agree on correlation/1 disagree/0 abstained/6 agree on emergency nature/2 disagree/0 abstained/3 ballots not returned. See Attachment 19-8-30-b

**19-8-30-c** Six comments were received. (4 Support, 2 Oppose) See Attachment 19-8-30-c

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<tr>
<th>19-8-31</th>
<th>Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Section 9.6.13.1(2)(d), 9.6.13.2.1(7), 11.3.19.2.1(7), and 11.3.9.2.2.7 of the 2019 Edition of NFPA 1221, <em>Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems</em> (TIA No. 1435).</th>
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<td>19-8-31-a</td>
<td>Text of proposed TIA No. 1435. See Attachment 19-8-31-a.</td>
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<tr>
<td>19-8-31-b</td>
<td>Ballot results of TIA No. 1435. FAILED TC Ballot on both technical merit and emergency nature – 27 voting members/4 agree on technical merit/12 disagree/0 abstained/3 agree on emergency nature/13 disagree/0 abstained/11 ballots not returned. See Attachment 19-8-31-b</td>
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<tr>
<td>19-8-31-c</td>
<td>Two comments were received. (2 Support) See Attachment 19-8-31-c.</td>
</tr>
<tr>
<td>19-8-32</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Sections 7.1.1.3, 7.1.3.2.2.1, 7.1.3.5.1, 7.2.2.1, and 7.2.2.5 of the Proposed 2020 Edition of NFPA 1851, <em>Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting</em> (TIA No. 1445).</td>
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<td>19-8-32-a</td>
<td>Text of proposed TIA No. 1445. See Attachment 19-8-32-a.</td>
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<td>19-8-32-b</td>
<td>Ballot results of TIA No. 1445. PASSED TC Ballot on both technical merit and emergency nature – 34 voting members/27 agree on technical merit/0 disagree/0 abstained/7 agree on emergency nature/0 disagree/0 abstained/7 ballots not returned. PASSED CC Ballot on both correlation and emergency nature – 29 voting members/21 agree on correlation/0 disagree/0 abstained/21 agree on emergency nature/0 disagree/0 abstained/8 ballots not returned. See Attachment 19-8-32-b</td>
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<tr>
<td>19-8-32-c</td>
<td>No comments were received.</td>
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<tr>
<td>19-8-33</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Sections 11.3.7.3 thru 11.3.7.5 of the Proposed 2020 Edition of NFPA 1851, <em>Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting</em> (TIA No. 1446).</td>
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<td>19-8-33-a</td>
<td>Text of proposed TIA No. 1446. See Attachment 19-8-33-a.</td>
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<td>19-8-33-b</td>
<td>Ballot results of TIA No. 1446. PASSED TC Ballot on both technical merit and emergency nature – 34 voting members/27 agree on technical merit/0 disagree/0 abstained/7 agree on emergency nature/0 disagree/0 abstained/7 ballots not returned. PASSED CC Ballot on both correlation and emergency nature – 29 voting members/21 agree on correlation/0 disagree/0 abstained/21 agree on emergency nature/0 disagree/0 abstained/8 ballots not returned. See Attachment 19-8-33-b</td>
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<tr>
<td>19-8-33-c</td>
<td>No comments were received.</td>
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<td>19-8-34</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Annex 12.2.4.3(1) of the Proposed 2020 Edition of NFPA 1851, <em>Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting</em> (TIA No. 1447).</td>
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<td>19-8-34-a</td>
<td>Text of proposed TIA No. 1447. See Attachment 19-8-34-a.</td>
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<tr>
<td>19-8-34-b</td>
<td>Ballot results of TIA No. 1447. PASSED TC Ballot on both technical merit and emergency nature – 34 voting members/28 agree on technical merit/0 disagree/0 abstained/6 ballots not returned. PASSED CC Ballot on both correlation and emergency nature – 29 voting members/21 agree on correlation/0 disagree/0 abstained/21 agree on emergency nature/0 disagree/0 abstained/8 ballots not returned. See Attachment 19-8-34-b</td>
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<tr>
<td>19-8-34-c</td>
<td>No comments were received.</td>
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<tr>
<td>19-8-35</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Annex 7.2.2.5 and Annex 9.1.6 of the Proposed 2020 Edition of NFPA 1851, <em>Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting</em> (TIA No. 1448).</td>
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</table>
**19-8-35**

**Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Table 11.3.9(c), and add new paragraphs 11.3.9.2.1 thru 11.3.9.2.4(new) to the Proposed 2020 Edition of NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (TIA No. 1448).**

19-8-35-a  **Text** of proposed TIA No. 1448. See Attachment 19-8-35-a

19-8-35-b  Ballot results of TIA No. 1448. **PASSED** TC Ballot on both technical merit and emergency nature – 34 voting members/28 agree on technical merit/0 disagree/0 abstained/7 ballots not returned. **PASSED** CC Ballot on both correlation and emergency nature –30 voting members/21 agree on correlation/0 disagree/0 abstained/9 ballots not returned. See Attachment 19-8-35-b

19-8-35-c  **No** comments were received.

19-8-36  **Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Various Sections of the Proposed 2020 Edition of NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (TIA No. 1449).**

19-8-36-a  **Text** of proposed TIA No. 1449. See Attachment 19-8-36-a

19-8-36-b  Ballot results of TIA No. 1449. **PASSED** TC Ballot on both technical merit and emergency nature – 34 voting members/27 agree on technical merit/0 disagree/1 abstained/27 ballots not returned. **PASSED** CC Ballot on both correlation and emergency nature –29 voting members/21 agree on correlation/0 disagree/0 abstained/8 ballots not returned. See Attachment 19-8-36-b

19-8-36-c  **No** comments were received.

19-8-37  **Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Table 11.3.9(c), and add new paragraphs 11.3.9.2.1 thru 11.3.9.2.4(new) to the Proposed 2020 Edition of NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (TIA No. 1450).**

19-8-37-a  **Text** of proposed TIA No. 1450. See Attachment 19-8-37-a

19-8-37-b  Ballot results of TIA No. 1450. **PASSED** TC Ballot on both technical merit and emergency nature – 34 voting members/27 agree on technical merit/1 disagree/1 abstained/27 ballots not returned. **PASSED** CC Ballot on both correlation and emergency nature –30 voting members/21 agree on correlation/0 disagree/0 abstained/9 ballots not returned. See Attachment 19-8-37-b

19-8-37-c  **No** comments were received.

19-8-38  **Act on the issuance of proposed Tentative Interim Amendment (TIA) to revise Table 6.1.14.3(a), 6.1.14.3, Table 6.1.14.3(d)(new), Figure 6.1.14.7(c), 6.1.14.4, 6.1.14.5, and Figure 6.1.14.7(c) of the 2016 Edition of NFPA 1977, Standard on Protective Clothing and Equipment for Wildland Fire Fighting (TIA No. 1422).**

19-8-38-a  **Text** of proposed TIA No. 1422. See Attachment 19-8-38-a

19-8-38-b  Ballot results of TIA No. 1422. **FAILED** TC Ballot on both technical merit and emergency nature – 22 voting members/12 agree on technical merit/5 disagree/0 abstained/13 agree on emergency nature/4 disagree/0 abstained/5 ballots not returned. **PASSED** CC Ballot on both correlation and emergency nature –29 voting members/23 agree on correlation/0 disagree/1 abstained/21 agree on emergency nature/3 disagree/0 abstained/5 ballots not returned. See Attachment 19-8-38-b

19-8-38-c  **Twelve** comments were received. (10 Support, 2 Oppose) See Attachment 19-8-38-c
| 19-8-38-d APPEAL | Appeal of K. Hallam, GREEN BUFFALOW, Ltd. Requesting the Standards Council Overturn the Technical Committee Action and issue TIA 1422 on NFPA 1977. See Attachment 19-8-38-d |
| 19-8-31-d-1 | Comment received by George Broyles, Chair, NFPA 1977, regarding the appeal of K. Hallam on TIA No. 1422 on NFPA 1977. See Attachment 19-8-38-d-1 |
| 19-8-38-d-2 | Two comments were received. (1 Support, 1 Oppose) See Attachment 19-8-38-d-2 |
| 19-8-39 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new paragraphs 6.6.4.3, 6.6.4.3.1 and 6.6.4.3.2 to the 2019 Edition of NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services (TIA No. 1420). |
| 19-8-39-a | Text of proposed TIA No. 1420. See Attachment 19-8-39-a |
| 19-8-39-b | Ballot results of TIA No. 1420. FAILED TC Ballot on both technical merit and emergency nature – 32 voting members/6 agree on technical merit/19 disagree/4 abstained/7 agree on emergency nature/18 disagree/4 abstained/3 ballots not returned. FAILED CC Ballot on both correlation and emergency nature – 29 voting members/10 agree on correlation/6 disagree/5 abstained/6 agree on emergency nature/11 disagree/4 abstained/8 ballots not returned. See Attachment 19-8-39-b |
| 19-8-39-c | Two comments were received. (2 Oppose) See Attachment 19-8-39-c |
| 19-8-40-a | Text of proposed TIA No. 1428. See Attachment 19-8-40-a |
| 19-8-40-b | Ballot results of TIA No. 1428. PASSED TC Ballot on both technical merit and emergency nature – 31 voting members/25 agree on technical merit/0 disagree/22 agree on emergency nature/3 disagree/0 abstained/6 ballots not returned. PASSED CC Ballot on both correlation and emergency nature – 30 voting members/23 agree on correlation/0 disagree/0 abstained/21 agree on emergency nature/2 disagree/0 abstained/7 ballots not returned. See Attachment 19-8-40-b |
| 19-8-40-c | No comments were received. |
| 19-8-41-a | Text of proposed TIA No. 1429. See Attachment 19-8-41-a |
| 19-8-41-b | Ballot results of TIA No. 1429. FAILED TC Ballot on both technical merit and emergency nature – 31 voting members/11 agree on technical merit/13 disagree/0 abstained/12 agree on emergency nature/12 disagree/0 abstained/7 ballots not returned. FAILED CC Ballot on both correlation and emergency nature – 30 voting members/9 agree on correlation/13 disagree/0 abstained/6 agree on emergency nature/16 disagree/0 abstained/8 ballots not returned. See Attachment 19-8-41-b |
| 19-8-41-c | No comments were received. |
| 19-8-42 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to add new paragraph 7.6.2.8 (renumber subsequent paragraphs), and revise A.7.6.2.9.1 of the 2018 Edition of NFPA 1994, Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents (TIA No. 1431). |
| 19-8-42-a | Text of proposed TIA No. 1431. See Attachment 19-8-42-a |
| 19-8-42-b | Ballot results of TIA No. 1431. PASSED TC Ballot on both technical merit and emergency nature – 31 voting members/24 agree on technical merit/0 disagree/1 abstained/24 agree on emergency nature/1 disagree/0 abstained/6 ballots not returned. PASSED CC Ballot on both
<table>
<thead>
<tr>
<th>19-8-42-c</th>
<th>No comments were received.</th>
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<tr>
<td><strong>19-8-43</strong></td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to add and amend various paragraphs, including cross references to the 2018 Edition of NFPA 1994, <em>Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents</em> (TIA No. 1432).</td>
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<tr>
<td>19-8-43-a</td>
<td>Text of proposed TIA No. 1432. See Attachment 19-8-43-a</td>
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<tr>
<td>19-8-43-b</td>
<td>Ballot results of TIA No. 1432. FAILED TC Ballot on both technical merit and emergency nature – 31 voting members/11 agree on technical merit/14 disagree/0 abstained/10 agree on emergency nature/12 disagree/0 abstained/6 ballots not returned. FAILED CC Ballot on both correlation and emergency nature –30 voting members/10 agree on correlation/16 disagree/0 abstained/4 agree on emergency nature/20 disagree/1 abstained/5 ballots not returned. See Attachment 19-8-43-b</td>
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<tr>
<td>19-8-43-c</td>
<td>No comments were received.</td>
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<td><strong>19-8-44</strong></td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to add various new paragraphs in Chapters 6, 7 and 8 of the 2018 Edition of NFPA 1994, <em>Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents</em> (TIA No. 1433).</td>
</tr>
<tr>
<td>19-8-44-a</td>
<td>Text of proposed TIA No. 1433. See Attachment 19-8-44-a</td>
</tr>
<tr>
<td>19-8-44-b</td>
<td>Ballot results of TIA No. 1433. FAILED TC Ballot on both technical merit and emergency nature – 31 voting members/10 agree on technical merit/14 disagree/0 abstained/10 agree on emergency nature/12 disagree/0 abstained/6 ballots not returned. FAILED CC Ballot on both correlation and emergency nature –30 voting members/9 agree on correlation/16 disagree/0 abstained/6 agree on emergency nature/18 disagree/1 abstained/5 ballots not returned. See Attachment 19-8-44-b</td>
</tr>
<tr>
<td>19-8-44-c</td>
<td>No comments were received.</td>
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<tr>
<td><strong>19-8-45</strong></td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to add 7.2.1.2.5(new), 7.2.1.2.6(new), 7.3.1.2.3(new), 7.3.1.2.4(new), 7.4.1.2.5(new), 7.4.1.2.6(new), 7.5.1.2.5(new), and 7.5.1.2.6(new) of the 2018 Edition of NFPA 1994, <em>Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents</em> (TIA No. 1434).</td>
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<td>19-8-45-a</td>
<td>Text of proposed TIA No. 1434. See Attachment 19-8-45-a</td>
</tr>
<tr>
<td>19-8-45-b</td>
<td>Ballot results of TIA No. 1434. FAILED TC Ballot on both technical merit and emergency nature –31 voting members/11 agree on technical merit/0 abstained/12 agree on emergency nature/13 disagree/0 abstained/6 ballots not returned. FAILED CC Ballot on both correlation and emergency nature –30 voting members/8 agree on correlation/16 disagree/1 abstained/4 agree on emergency nature/20 disagree/1 abstained/5 ballots not returned. See Attachment 19-8-45-b</td>
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<td>19-8-45-c</td>
<td>No comments were received.</td>
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<tr>
<td>19-8-46-a</td>
<td>Text of proposed TIA No. 1457. See Attachment 19-8-46-a</td>
</tr>
<tr>
<td>19-8-46-b</td>
<td>Ballot results of TIA No. 1457. FAILED TC Ballot, passed on Technical Merit but failed Emergency Nature – 32 voting members/20 agree on technical merit/5 disagree/1 abstained/17 ballots not returned. See Attachment 19-8-46-b</td>
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</tbody>
</table>
agree on emergency nature/9 disagree/0 abstained/6 ballots not returned. FAILED CC Ballot, passed Correlation Issue but failed Emergency Nature –16 voting members/9 agree on correlation/3 disagree/0 abstained/4 agree on emergency nature/8 disagree/0 abstained/4 ballots not returned. See Attachment 19-8-46-b

19-8-46-c No comments were received.

19-8-47 Consider the request from NFPA Committees to change revision cycle for the following documents:

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<td>A2024 to A2023</td>
<td>Permanent Move</td>
<td>4 to 3 year revision cycle</td>
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<td>2017 A2020</td>
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<td>951</td>
<td>2016 F2020</td>
<td>F2020 to A2021</td>
<td>1X move</td>
<td>5 to 5½ revision cycle</td>
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See Attachment 19-8-47

19-8-48 Response from the Correlating Committee Chair for Dusts regarding the timeline to accomplish the consolidation of the Combustible Dust standards. See Attachment 19-8-48

19-8-49 The Council received a request to develop a document that would identify the minimum job requirements for personnel engaged in specified roles that support fire service organizations, but who are not engaged in traditional firefighting activities. At its December 2018 meeting, Council asked staff to work with interested stakeholders to determine if the development of such standards would be: (1) appropriate for assignment to the Fire Fighter Professional Qualifications Committee; and if so (2) best included within NFPA 1001 or best as a new standard.

At the direction of Council, Staff assembled a Task Group comprised of various members of the Technical Committee on Fire Fighter Professional Qualifications, as well as other interested stakeholders. The Task Group is in favor of assigning this subject to the Fire Fighter Professional Qualifications Committee and noted that the Committee scope would require the Council’s approval to proceed. The Task Group also agreed that the minimum job qualifications for roles that support fire service organizations, but do engage in traditional firefighting activities, should be included within NFPA 1001.

The Standards Council requested input from the Technical Committee as to whether it agrees with the Task Group recommendations. NFPA Staff is now reporting back to the Standards Council with the results of that request.

**Proposed Committee Scope:** This Committee shall have primary responsibility for documents on professional competence qualifications required of the fire fighters and fire service support personnel.

See Attachment 19-8-49

19-8-50 Consider the request of the Technical Committee on Wildland Fire Fighting Protective Clothing and Equipment to enter proposed document NFPA 1877, Standard on Selection, Care, and Maintenance of Wildland Fire Fighting Protective Clothing and Equipment into the F2020 revision cycle. This document was returned to the Committee by the Fire and Emergency Services Protective Clothing and Equipment Correlating Committee for further study.
<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-8-51</td>
<td>At the April 2019 Standards Council Meeting the Council reviewed the request of Preet Bassi, Center for Public Safety Excellence, Inc., and Denis Onieal, US Fire Administration, to develop a standard on fire service analysts and information technical specialist professional qualifications. After reviewing all of the material before them, the Council directed that additional applications from individuals across multiple disciplines were still needed. The Council directed Staff to report back to the Council with a balanced Committee and a scope for the Committee. At this meeting, a balance roster is being proposed to the Council (see related Agenda Item 19-8-55-b). The following scope is also proposed for the Council’s review. <strong>Proposed Committee Scope:</strong> This Committee shall have primary responsibility for documents on the professional qualifications for personnel who use, manage, review, analyze, support, or evaluate data and related technical systems in public safety agencies. No Attachment.</td>
</tr>
<tr>
<td>19-8-52</td>
<td>At the April 2019 Standards Council Meeting, the Council reviewed the request of Ted Williams, American Gas Association, to develop a standard on the location and installation of residential fuel gas detectors. After reviewing all of the material before them, the Council directed that a call for applications from additional individuals was needed. The Council directed Staff to report back to the Council with a balanced technical Committee and a scope for the Committee. At this meeting, a balance roster is being proposed to the Council (see related Agenda Item 19-8-55-c). The following scope is also proposed for the Council’s review. <strong>Proposed Committee Scope:</strong> This Committee shall have primary responsibility for documents on the installation, performance, maintenance, testing, and use of fuel gases warning equipment for the protection of life, property and mission continuity. This Committee shall address the selection, installation, operation, and maintenance of fuel gases warning equipment. No Attachment.</td>
</tr>
<tr>
<td>19-8-54</td>
<td>Consider the request of the Emergency Responder &amp; Responder Safety (ERRS) Division to approve the cycle changes for the remainder of the documents that will be changing cycles due to the ERRS consolidation plan. See Attachment 19-8-54.</td>
</tr>
<tr>
<td>19-8-55</td>
<td>Report of the Committee Membership Task Group (J. Golinveaux, Chair).</td>
</tr>
<tr>
<td>19-8-55-a</td>
<td>Act on pending applications for Committee Members. See Supplemental Attachment 19-8-55-b.</td>
</tr>
<tr>
<td>19-8-55-b</td>
<td>Review proposed start-up roster for the Technical Committee on Fire Service Analysts and Informational Technical Specialists Professional Qualifications. See Supplemental Attachment 19-8-55-b.</td>
</tr>
<tr>
<td>19-8-55-c</td>
<td>Review proposed start-up roster for the Technical Committee on Fuel Gases Warning Equipment. See Supplemental Attachment 19-8-55-c.</td>
</tr>
<tr>
<td>19-8-55-d</td>
<td>Review proposed start-up roster for the Technical Committee on Emergency Responders Occupational Health. See Supplemental Attachment 19-8-55-d.</td>
</tr>
<tr>
<td>19-8-55-e</td>
<td>Review proposed start-up roster for the Technical Committee on Spaceports. See Supplemental Attachment 19-8-55-e.</td>
</tr>
<tr>
<td>19-8-55-f</td>
<td>Discuss a request to modify the membership policy on members reapplying to the Committee after a change in status. See Attachment 19-8-55-f</td>
</tr>
<tr>
<td>19-8-56</td>
<td>Report of the Policy and Procedures Task Group (D. O’Connor, Chair) See Supplementary Attachment 19-8-56</td>
</tr>
<tr>
<td>19-8-57</td>
<td>Report from the Recording Secretary on the April 2019 Minutes.</td>
</tr>
<tr>
<td>19-8-58</td>
<td>The Council will review the dates and locations of upcoming Council meetings, as follows:</td>
</tr>
<tr>
<td></td>
<td>December 5-6, 2019</td>
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<td>TBD</td>
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<td>April 1-2, 2020</td>
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<td>TBD</td>
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<td></td>
<td>August 10-12, 2020 (Revised)</td>
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<td></td>
<td>Quincy, MA</td>
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<tr>
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<td>December 2-3, 2020</td>
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<td>TBD</td>
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</tbody>
</table>
1. Revise title of Table 6.1.14.3(a) to read as follows:

Table 6.1.14.3(a) Minimum Sizing Requirements for Men’s Protective Upper Torso Garments (in.)

...
4. Add a new Figure 6.1.14.7(c) and renumber subsequent figure to read as follows:

![Diagram of shirt with measurements]

A. Chest  
B. Sleeve Length  
C. Waist  
D. Length

A. Chest Circumference. Measurement of upper torso garment from folded edge to folded edge, at base of armholes and multiplied by 2 to obtain circumference.  
B. Sleeve Length. Measurement from midpoint of shoulder diagonally down sleeve to bottom edge of cuff.  
C. Waist Circumference. A garment measurement from top edge of waistband from folded edge to folded edge, and multiplied by 2 to obtain circumference.  
D. Total Length. Upper torso garment measurement from high point shoulder at base of collar to bottom edge of garment.

FIGURE 6.1.14.7(c) Womens Upper Torso Measurements [to be used with Table 6.1.14.3(d)]

...  
FIGURE 6.1.14.4.7(ed) One-Piece Garment Torso Measurements [to be used with Table 6.1.14.3(de)].

5. Revise cross references in paragraphs 6.1.14.4 and 6.1.14.5, and Figure 6.1.14.7(c) caption to read as follows:  
6.1.14.4 Size requirements for tall sizes for upper torso measurements as specified in Table 6.1.14.3(a) and Table 6.1.14.3(de) shall have an additional 25 mm (1 in.) added to the sleeve length dimension and an additional 38 mm (1 1/2 in.) added to the front and back length dimensions.

6.1.14.5 Garments shall be permitted for sizes midway between those specified, provided that they meet dimensional requirements that are midway between the respective values for corresponding even sizes specified in Table 6.1.14.3(a) through Table 6.1.14.3(de).

FIGURE 6.1.14.7(c) One-Piece Garment Torso Measurements [to be used with Table 6.1.14.3(de)].
**Substantiation:** In NFPA 1977-2016, Table 6.1.14.3(a) Minimum Sizing Requirements for Protective Upper Torso Garments, there is only one table that does not state Unisex, Men’s or Women’s. This table causes significant fit issues for women required to wear said garments when the appropriate measurements are not sufficient for women. There should be two separate size tables included for Protective Upper Torso Garments, one table specifically for women and a second table specifically for men as there are for protective lower torso garments.

**Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to correct a previously unknown existing hazard. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

The following testimonies are a couple of the responses that our company received after asking women of their concerns/issues regarding the current wildland firefighting uniforms. Since these can be somewhat lengthy, we only included a couple, but we have many more that have very similar responses. 1) “I’d like to work in PPE that helps my performance not hinder it. Something that makes my job safer and easier is something I’m prohibited from wearing. What I’m offered to wear literally makes me bleed. There’s bigger issues with the NFPA sizing standards that need to be changed to get firefighters the best gear with the safest fit. I need to be able to run from fire at any time.” and 2) “As a woman who has been in wildland fire for nearly 20 years I have struggled my entire career to have Nomex pants that fit as I have a curvy body shape with muscular thighs and a shorter rise then most men. This body shape does not lend itself to the standard cut and fit of men’s pants. In order to get men’s pants to fit my quads and hips I end up with pants that have a crotch that is nearly to my knees while the waistband is up to my ribs and is larger than necessary for my waist. Without a belt, there is no chance of them staying up and even with a belt they slide down throughout the day. The problem that this leads to is two-fold. One, I always have one hand busy pulling the crotch of my pants up so that I can hike, step over or just move around without the crotch of my pants restricting my movements or catching on obstacles. This makes having two hands available to do work challenging and increases the risk and hazard of my activities. Two, with the waist of my pants bunched up under my line gear chafing and blisters occur where my line-gear and pants waistbands rub. On 14-day assignments this has led to needing wound-care for blisters. Both of these issues pose a safety threat and a body shape such as mine isn’t uncommon, especially in the field of wildland firefighting. It would be fantastic if this need could be recognized and gear designed and approved to fit the female body. All wildland firefighters deserve personal protective equipment that fits their bodies and allows them to safely do their work.” We feel the responses substantiate a need for there to be a women’s specific fit included in the NFPA 1977 Standard. Women feel unsafe and at risk while performing a physically demanding job wearing clothing made for men.
MEMORANDUM

TO: Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: May 24, 2019

SUBJECT: NFPA 1977 Proposed TIA No. 1422 FINAL CC BALLOT RESULTS

The public comment circulation has passed, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA HAS achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

29 Eligible to Vote
5 Not Returned (Area, Barker, Farley, Legendre, Traynor)

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<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Abstention (Lehtonen)</td>
<td>0 Abstentions</td>
</tr>
<tr>
<td>23 Agree (w/ comment: McKenna, Roche, Stull, Weise)</td>
<td>21 Agree</td>
</tr>
<tr>
<td>0 Disagree</td>
<td>3 Disagree (Haston, McKenna, Winer)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[\text{29 eligible \div 2 = 14.5 = (15)}\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 18.

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<tr>
<th>Correlation Issues:</th>
<th>Emergency Nature:</th>
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<tbody>
<tr>
<td>(29 eligible to vote - 5 not returned - 1 abstention = 23 \times 0.75 =17.25)</td>
<td>(29 eligible to vote - 5 not returned - 0 abstentions = 24 \times 0.75 =18)</td>
</tr>
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</table>

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is May 29, 2019
I AGREE there are no CORRELATION ISSUES in accordance with 3.4.2 and 3.4.3 of the NFPA Regs.

Eligible to Vote: 29
Not Returned : 5
Roger L. Barker, Jeff Legendre, James B. Area, W. Jason Traynor, Edmund Farley

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<tr>
<td>Pamela A. Kavalesky</td>
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<tr>
<td>Joseph Arrington</td>
<td>I Agree</td>
<td></td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>David G. Matthews</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Jack E. Reall</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Patricia A. Gleason</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>David V. Haston</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Diane B. Hess</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Michael F. McKenna</td>
<td>I agree that there are no correlation issues, but believe that the manufacturers should determine the individual sizing system that best fits their manufacturing process and designs. I do not think that this TIA does not provide enough sizes to be adequate.</td>
<td></td>
</tr>
<tr>
<td>Thomas M. Hosea</td>
<td>Agree</td>
<td></td>
</tr>
</tbody>
</table>
Patricia A. Freeman  agree
Douglas Menard  Agree
Jeffrey O. Stull  The proposed language actually corrects for a lack of correlation within the existing standard.
Kevin M. Roche  Necessary change.
Steven H. Weinstein  Agree.
Beth C. Lancaster  Agree
Harry P. Winer  Agree
Richard Weise  Two sizing charts for men and women
John H. Morris  Agree
William A. Van Lent  Agree
Disagree  0
Abstain  1
Karen E. Lehtonen  The standard currently addresses unique sizing, however after discussing with several committee members it appears there are differing interpretations. It should be noted that this TIA may not be the final fix and hopefully will not create correlation issues in the future should sizing be handled differently in the next revision. The TC should more thoroughly address sizing in the standard’s revision process.

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instruction Box.

Eligible to Vote: 29
Not Returned : 5
Roger L. Barker,Jeff Legendre,James B. Area,W. Jason Traynor,Edmund Farley

Vote Selection  Votes  Comments
<table>
<thead>
<tr>
<th>Agree</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pamela A. Kavalesky</td>
<td>D</td>
</tr>
<tr>
<td>Joseph Arrington</td>
<td>A</td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td>Agree</td>
</tr>
<tr>
<td>David G. Matthews</td>
<td>A</td>
</tr>
<tr>
<td>Jack E. Reall</td>
<td>A. The Standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td>B. However this issue should also be reviewed during the standard’s revision process.</td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td>Agree</td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process. C. The proposed TIA intends to correct a previously unknown existing hazard. D. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.</td>
</tr>
<tr>
<td>Patricia A. Gleason</td>
<td>A &amp; C</td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>Agree</td>
</tr>
<tr>
<td>Diane B. Hess</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process</td>
</tr>
<tr>
<td>Thomas M. Hosea</td>
<td>Agree</td>
</tr>
<tr>
<td>Patricia A. Freeman</td>
<td>The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Douglas Menard</td>
<td>Agree</td>
</tr>
</tbody>
</table>
Jeffrey O. Stull

This proposed TIA addresses an ongoing need to provide appropriate fitted clothing for female firefighters that has been consistently overlooked in this and past editions of the standard.

Kevin M. Roche

Necessary change.

Steven H. Weinstein

A, C and D

Beth C. Lancaster

A

Richard Weise

Error or omission, to improve ergonomic fit for men and women

John H. Morris

A. The standard contains an error or an omission that was overlooked during the regular revision process

William A. Van Lent

A

Disagree

3

David V. Haston

The female upper torso sizing chart is being addressed as part of the normal revision process.

Michael F. McKenna

I do not believe this issue is of Emergency Nature because it does not adequately address the sizing issues and should be returned to the TC.

Harry P. Winer

I do not see the emergency nature in creating a chart for women's sizing. I also do not feel that their are enough sizes to accommodate all women.

Abstain

0
MEMORANDUM

TO: Technical Committee on Wildland Fire Fighting Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: May 24, 2019

SUBJECT: NFPA 1977 Proposed TIA No. 1422 FINAL TC BALLOT RESULTS

The public comment circulation has passed, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

22 Eligible to Vote
5 Not Returned (Ackerman, Davis, Mousseau, Sipe, Wood)

Technical Merit:
0 Abstentions
12 Agree (w/comment: Johnson, Salvato)
5 Disagree (Broyles, Diaz, Kaiser, Moore, Jr., Petrilli)

Emergency Nature:
0 Abstentions
13 Agree (w/comment: Johnson, Swan, Salvato)
4 Disagree (Brown, Diaz, Moore, Jr., Petrilli)

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

[22 eligible ÷ 2 = 11 + 1 = (12)]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 13

(22 eligible to vote - 5 not returned - 0 abstentions = 17 × 0.75 = 12.75)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is May 29, 2019.
Eligible to Vote: 22
Not Returned : 5
Joel E. Sipe, Mark Y. Ackerman, Gary C. Wood, Marc Mousseau, Derrick Davis

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Jason L. Allen</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Tricia L. Hock</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>R. J. Johnson</td>
<td>We know the clothing made to the current chart does not fit most women correctly.</td>
<td></td>
</tr>
<tr>
<td>Richard Brown</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>David P. Fanning</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Rick L. Swan</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Brian P. Shiels</td>
<td>I agree.</td>
<td></td>
</tr>
<tr>
<td>Richard Weise</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Benjamin Mauti</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
<td></td>
</tr>
<tr>
<td>Michael Salvato</td>
<td>I agree with the technical merits of ensuring that women's sizes fit better than the original sizing. The more I read through the detail, the more I keep thinking 'why is the standard dictating sizes?'. It seems to me that perhaps it would be better to remove all of the sizing info from the requirements. Perhaps it could be moved to the Annex as recommendations.</td>
<td></td>
</tr>
<tr>
<td>Curtis Brown</td>
<td>C. The proposed TIA intends to correct a previously unknown existing hazard.</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Anthony Petrilli</td>
<td>Too much variability in sizing measurements, not clear how it will ensure better fitting garments.</td>
<td></td>
</tr>
</tbody>
</table>
Major Concerns: • Lack of ease = air gap concerns o In the size “ranges” supplied in the TIA, the ease does not meet current NFPA requirements, per our calculations (i.e. XS minimum size “range” is 3 at bottom of range and 7 at top of range). Current requirement for ease for all sizes is +6. • Ease is not consistent from one size to the next o With the size “ranges”, XS = 3 to 7, Small = 2 ¾ to 6 ¾ Medium = 3 ¾ to 4 ¾, etc. • Language used in the TIA is not consistent with current NFPA language o TIA uses decimal points whereas NFPA uses fractions o TIA uses a scale or range for the minimum sizing requirements (how do you have a range for a minimum?) o Example: TIA XS chest = 18-20, NFPA XS chest =39 (essentially, standard is to double the circumference, but the TIA is assuming it will be doubled). TIA XS sleeve = 22.75-24.75, NFPA XS sleeve = 30 ½• I feel when a sizing chart were to be approved, it should go into the Annex for the current addition, not in the standard itself. Including it in the standard itself will cause current manufacturers who make women’s garments to have to submit all their current garments for retesting

The following technical issues prevent us from accepting the proposed TIA language. The proposed language will bring inconsistency when applying the sizing requirements across all products in the standard. 1) Item 3 - Table 6.1.14.3(d). The measurement locations are not aligned with the existing requirements. The proposed locations offer a reduction in requirements for sizing of women’s garments; making men’s garment sizing more severe. The proposed language also uses decimals (ie. 22.75) instead of fractions (ie. 22 ¾) which is inconsistent application of the requirements. 2) Item 4. The proposed sleeve length measurement description (B) is ambiguous and difficult to apply, which could cause variability when compared to the current requirements (Figure 6.1.14.7(a), E. Sleeve Length). It is unclear where the sleeve should be placed so that a diagonal measurement can be taken consistently and accurately. 3) Item 4. The proposed total length measurement description (D) is not clear if it refers to front or back of the garment. Current standard for upper torso garments includes front length and back length, which are described in greater detail.

Based on comments to initial ballot it appears the proposed sizing chart will cause problems for users and testing labs and also introduces inconsistencies within the standard.

Vincent Diaz

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 22
Not Returned : 5
Joel E. Sipe, Mark Y. Ackerman, Gary C. Wood, Marc Mousseau, Derrick Davis

<table>
<thead>
<tr>
<th>Vote Selection</th>
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<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

Jason L. Allen
Tricia L. Hock
William E. Haskell, III
R. J. Johnson
Richard Brown
David P. Fanning
Rick L. Swan
Brian P. Shiels
Richard Weise
Andrew Kaiser
Benjamin Mauti

The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

William E. Haskell, III Agree
R. J. Johnson Providing clothing that fits correctly should not wait for the next addition of the 1977.
Richard Brown agree
David P. Fanning

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Richard Weise
Andrew Kaiser
Benjamin Mauti

Contains an error or an omission that was overlooked during the regular revision process.

Andrew Kaiser A. The standard contains an error or an omission that was overlooked during the regular revision process.
Michael Salvato

I agree with the emergency nature because the current sizing is too restrictive to ensure that all members get the best fitted gear.

George Broyles

F

Disagree

Anthony Petrilli

This topic is being addressed in the next revision.

• TIA claims this is being submitted due to the emergency nature of the omission of women’s sizing in the current standard. I disagree that this should be considered an emergency

• I do not disagree that there should be a separate sizing chart for women, and I fully support having a separate sizing chart however, this TIA has too many errors and inconsistencies to be approved

David A. Moore, Jr.

I disagree that this is of an Emergency Nature. More time should be spent with current manufactures to ensure consistent measurements as compared to the current standard. The revision should be considered at the next regularly scheduled standard revision.

Curtis Brown

Abstain

1


Vincent Diaz
<table>
<thead>
<tr>
<th>From:</th>
<th>Bria Fleming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sent:</td>
<td>Monday, April 1, 2019 7:34 PM</td>
</tr>
<tr>
<td>To:</td>
<td>TIAs</td>
</tr>
<tr>
<td>Subject:</td>
<td>Women's Wildland Clothing</td>
</tr>
</tbody>
</table>

Hello,
Regarding the proposed amendments to NFPA 1977; THANK YOU! It's about time. I've been working in wildland fire for almost ten years and the problems with the clothing available to women on the fireline are endless. Thanks for allowing the beginning of this conversation.
Most sincerely,

- Bria Fleming
Senior Firefighter
Indiana Dunes National Park
Good morning,

Over the past 40 years, women have become a staple in fire operations and are even sought after by hiring managers to improve diversity of thought, gender and ability. It is time that uniforms reflect the diversity of the organization. Differences in body type are drastic and proper fitting clothing crucial in fire operations. As a 20-year veteran of wildland fire, I believe it is crucial to consider NFPA approved, women-specific nomex uniforms for female wildland firefighters. Thank you for your consideration.

Best regards,

Koreena Haynes
Fire Training & Recruitment Officer

BLM Arizona - Arizona State Office
1 N Central Avenue
Phoenix, AZ 85004
To whom it may concern,

My Name is Hannah Key, I am a career wildland firefighter for the US Forest Service. I have been fighting fire for 12 years and intend to stay in wildland fire until retirement. The issue of PPE is a huge one for me personally, and I support TIA 1422. I have become somewhat of a spokesperson for female firefighters over the past 4 years about the PPE issue. I am consistently hearing the same complaints, improper fit, have to get gear that is too big in order for it to fit over thighs or bust lines, looking unprofessional due to oversized, ill-fitting gear, gear bunching up causing chafing and bleeding, the rise of the pants being much too long…etc. I could go on and on about what many have said to me personally, but those are the top overarching complaints.

To speak for myself, although my complaints have been echoed by many, the protective equipment that is issued to me is currently not efficient for the female body. I literally chafe and bleed because of improper fit of our standard NFPA 1977 approved gear. I struggle with my maneuverability and it hinders my performance and ability to move quickly, which is a top safety issue on the fireline. I have tried many different sizes and styles and have had to resort to wearing garments that are not NFPA approved in order to be able to be safer on the fireline. I have to wear clothes, that I buy with my own money, that are not technically approved to wear but they are SAFER than the approved garments. I move easier in these unapproved garments, I do not chafe or bleed and I can run in them when necessary. The fact that unapproved garments, created with the female figure in mind, that are more efficient, comfortable and professional, but it is not something that I am allowed by policy to wear, is a problem. A BIG problem. Firefighter safety is our number one priority on all incidents and every single day we are working. Why is it that it’s so easy to dismiss the safety of many of our employees by not providing them with gear that fits? This is a problem that needs to be addressed and changed IMMEDIATELY. We cannot wait, we have been wearing the wrong equipment for far too long.

I have a brand new firefighter coming to work on my Engine Module this season, when fitting her for her Nomex shirt we had to go two sizes up in order for it to fit around her bust line. We then had to roll the sleeves up so it didn’t cover her hands completely and the bottom of the shirt went down to her thighs and bunched up horribly when she tucked it in. I can foresee a lot of issues with her PPE this season and I am saddened that there is nothing I can do about it. We cannot provide our employee with properly fitting gear due to the current sizing standards. This issue cannot wait until 2021. If you believe that we can wait, I suggest you go buy attire made for the opposite sex and tell me how comfortable you are. Have a broad shouldered man attempt to wear a shirt made for a petite woman and then attempt to hike up a mountain in 100 degree weather with 50+ pounds on his back, then dig fireline and then run….. Hilarious imagery, because it simply will not work. That is basically what we are dealing with.

The point is, I am not safe on the fireline wearing gear that is not designed with the female body type in mind. My coworkers are not safe wearing equipment that does not fit them. I have personally spoken with HUNDREDS of female firefighters, and male firefighters as well, and the overwhelming consensus that I have heard is that what we have currently is just not enough. The standard measurements that these garments are made by, are not working. We need the sizing standards changed, we need this TIA until we can get a solid solution. Waiting until 2021, is not okay.

This is a real issue, and I am not okay with waiting any longer. This is overdue. Please accept TIA 1422, for the safety of ALL firefighters.
If you have any questions, please don’t hesitate to contact me. My Cell phone number is 209-769-3438, I would love to hear from you and to learn more about the happenings with NFPA 1977 and TIA 1422.

Thank you for your time.

Sincerely,

Hannah Key

Hannah Key  
AFEO, Midpines Engine 312  
Forest Service  
Sierra National Forest, Bass Lake Ranger District

6440 Jerseydale Road  
Mariposa, CA 95338  
www.fs.fed.us

Caring for the land and serving people

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To Whom It May Concern,

It is my understanding that there MAY be changes to garment sizing for women in an upcoming version of the NFPA 1977 document by the year 2021. Though this is encouraging, it would be even better if the changes could happen sooner. Women throughout wildland firefighting have had to wear men’s clothing sizes and no person (male or female) is made the same. These inferior size choices make for tough decisions when firefighting. Wear a too large garment so you aren’t busting buttons, but have to roll the sleeves up three times and have a foot and a half of shirt hanging below your waist. This leads to brush and embers getting caught in the folds and clothing rubbing how it shouldn’t due to stuffing all the extra garment into your pants for tucking. Or we can choose to wear a garment that is on the edge of small...causing restriction in movement and chafing. I am a 5’ 0’’ tall woman, stocky in size, but am in the average sizes for Nomex (Medium shirt/32-36 short pants). I consistently have issues with chafing and having the pants crotch at my knees. And the side pockets are also at my knees causing horrible rubbing on the outside of my leg. I urge you to take a look at implementing these size tables and options for women a lot earlier than 2021. Yes, we choose to be in wildland firefighting, but just as we don’t make men wear women’s sized clothing, why should we have to wear men’s sized clothing?

I thank you for your time and consideration.

Sincerely,
Tamara Dierks
Wildland Firefighter for 13 years

Sent from Mail for Windows 10.
I am writing to express my appreciation for the consideration of women’s sizing for standard (NFPA Approved) nomex clothing. I have no suggestions or issues with the proposed table of changes for the addition of women’s sized nomex shirts. If I am reading the proposal correctly, this proposes the sizing for shirts only. I am unaware of any standard for women’s pants, and if there is not one, I hope that you will consider one in the near future. I have far more issues with the fit of standard (cache) nomex pants than the shirts; however, I appreciate the progress that is being made to have adequate PPE sizing for females.

Thank you,

Stacy Smith
Fuels Planner (Detailed Fire Planner)
Forest Service
Sawtooth National Forest, Minidoka Ranger District

2306 Hiland Ave
Burley, ID 83318
www.fs.fed.us

Caring for the land and serving people

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To Whom It May Concern,

I am writing in support of the Proposed TIA 1422 on NFPA 1977. As a female wildland firefighter, it is encouraging to see the safety issue of poorly fitting protective garments being addressed. The current standard clothing has always caused me discomfort, a lack of mobility, chafing, and generally hinders my ability to do my job as safely, efficiently, and quickly. Men's size charts and fit of current men's clothing often leaves me with either sleeves too long in order to get proper torso and chest fit, or sleeves that fit properly while having to squeeze into a shirt. Both hinder my function and safety. The situation with pants sizing is also a major hazard; I don't see specs for pants in this TIA but I hope this is also addressed as soon as possible. I am optimistic we can go forward to recognizing the need for updated and improved PPE in the immediate future.

Thank you!
Lisa Slepetski
Wildland Firefighter
Moose Pass, AK
Foran, Rosanne

From: Jeffrey Yee
Sent: Wednesday, May 8, 2019 2:03 PM
To: TIAs
Cc: Ryan Davidson; Sam Dobrowski
Subject: Comment on Proposed TIA 1422 on NFPA 1977

Subject: Proposed TIA No. 1422

From: Jeffrey Yee, Product Designer at CrewBoss

My name is Jeff Yee and I have been the Product Designer at CrewBoss for 8 years now. Prior to working at CrewBoss, I worked at Mountain Hardwear and studied garment design at California College of the Arts. During my time at CrewBoss, I have been able to cultivate a lot of knowledge about the Wildland Firefighting industry and designing personal protective garments, much of which has been provided to me by end-users. We work with numerous women firefighters that have requested we investigate improving the fit of protective apparel for women. In 2017, I created a survey with the help of our marketing department to gather information and validate improved garment designs for women firefighters. That same year, I conducted a garment wear trial of upper and lower torso garments with design changes that addressed the feedback. I used the current NFPA 1977 minimum measurements as my basis and deviated from them only as necessary. From the survey and wear trial, evidence does lead me to believe that revisions to the minimum measurements is necessary. Considering the scope of the industry and the people and entities involved, I would recommend that any changes made to the minimums be conservative until more data can be collected and more wear trials conducted. Below is my feedback on the TIA referenced above:

- The TIA is proposing to add an additional table with minimum measurements for Women’s Upper Torso Garments
  - Feedback from the survey I conducted was that the fit of Wildland shirts currently available on the market was either too tight or too loose across the chest. This is a potential indicator that in-between sizes may be necessary. The shirts I designed for the wear trial all met current NFPA minimum measurements but were sized numerically by chest with a 2” grading between chest sizes. Below is an example of a possible revision that could be made to the Minimum Sizing Requirements for Protective Upper Torso Garments:

<table>
<thead>
<tr>
<th>Dimension Measured</th>
<th>XS</th>
<th>S</th>
<th>M</th>
<th>L</th>
<th>XL</th>
<th>2XL</th>
<th>Amount of Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collar length (A)</td>
<td>14%</td>
<td>15</td>
<td>15%</td>
<td>16%</td>
<td>16%</td>
<td>17%</td>
<td>17%</td>
</tr>
<tr>
<td>Collar width (B)</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Front length (C)</td>
<td>24%</td>
<td>25%</td>
<td>25%</td>
<td>26%</td>
<td>26%</td>
<td>27%</td>
<td>27%</td>
</tr>
<tr>
<td>Back length (D)</td>
<td>28%</td>
<td>29%</td>
<td>29%</td>
<td>30%</td>
<td>30%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Sleeve length (E)</td>
<td>30%</td>
<td>31%</td>
<td>31%</td>
<td>32%</td>
<td>32%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>Sleeve cuff circumference (F)</td>
<td>12%</td>
<td>12%</td>
<td>12%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>Chest circumference (G)</td>
<td>39%</td>
<td>41%</td>
<td>43%</td>
<td>45%</td>
<td>47%</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>Waist circumference (H)</td>
<td>33%</td>
<td>35%</td>
<td>37%</td>
<td>39%</td>
<td>41%</td>
<td>43%</td>
<td>45%</td>
</tr>
<tr>
<td>Bottom circumference (I)</td>
<td>38%</td>
<td>40%</td>
<td>42%</td>
<td>44%</td>
<td>46%</td>
<td>48%</td>
<td>50%</td>
</tr>
</tbody>
</table>

- The TIA is proposing to change the way garments are measured, to remove current measurements and to add additional size/height measurements
  - I believe that the proposed changes would result in confusion with end-users, sales personnel, product distributors, product manufacturers and NFPA compliance inspectors. The current measurement system is functional, and I believe a certain degree of standardization and uniformity should remain in place.

- The TIA is proposing to change the figure illustration
  - I believe that the proposed change to the illustration is unnecessary. The current illustration is functional, clear and easy to understand for all entities involved in the design, validation, and inspection process.

- Response to the TIA Emergency Nature comments
  - The comments in this section do not address upper torso garments so I’m unclear as to how they support the proposed changes. There is however ample evidence that the minimum measurements for Women’s Lower Torso garments needs to be revised. The feedback I’ve received from women wildland firefighters is that they are
experiencing fit issues with the length of the front and back rise. There seems to be consensus among women Wildland Firefighters that the current front and back rise minimum measurements are too long which is resulting in fit, mobility and comfort issues. A majority of the issues reported were chafing along the inner thigh. Other issues reported were premature seam rupture in the crotch area, snagging due to excessive bagginess and the need for better pocket design.

Thank you,

Jeffrey Yee | Product Designer
To Whom It May Concern:

I, Korena Hallam, submitted Proposed TIA No. 1422 on behalf of Green Buffalow, Ltd. After speaking with a few Technical Committee members, we are submitting some editorial changes, if allowed. If edits are not allowed at this stage, we still feel our TIA is workable and should be taken into consideration as is. The reason for these proposed changes to the verbiage is to clear up any confusion for 3rd party certifiers involved. Currently, submitted as the following:

- A. Chest Circumference. Measurement of upper torso garment from folded edge to folded edge, at base of armholes and multiplied by 2 to obtain circumference.
- B. Sleeve Length. Measurement from midpoint of shoulder diagonally down sleeve to bottom edge of cuff.
- C. Waist Circumference. A garment measurement from top edge of waistband from folded edge to folded edge, and multiplied by 2 to obtain circumference.
- D. Total Length. Upper torso garment measurement from high point shoulder at base of collar to bottom edge of garment.

If edits are allowed, we would like to have the points of measurement read as follows:

- A. NO CHANGE NEEDED
- B. Sleeve Length. Upper torso measurement taken at edge of shoulder at the shoulder seam straight down to the bottom of the sleeve cuff.
- C. Waistline Circumference. Upper torso measurement taken from folded edge to folded edge at the midway point or smallest point on the garment body multiplied by 2 to obtain circumference.
- D. Total Length. Upper torso garment measurement from high point of shoulder at the base of collar to the front bottom edge of garment.

- We did notice in Figure 6.1.14.7(c) the sleeve measurement arrow has shifted down as it should go to the top of the shoulder to the base of the cuff.

We understand there is hesitation from some committee members, stating that this TIA is unnecessary, as the size and design requirements are currently being reviewed for the next edition in 2021. Our purpose of this TIA is to be able to offer women a better fitting upper torso garment, specifically designed with the female body in mind before then. They’ve already gone this long having to wear men’s clothing in the field, please allow them to have a better fitting, certifiable offering sooner than 2021. Our proposal may not be the perfect solution, but it is a solution that will allow upper torso garments out there currently to still be certified, along with new innovative, ergonomic, protective designs to be certifiable as well. Other feedback we’ve heard is that this TIA is not consistent with what is in the NFPA 1977: 2016 Edition, but this is consistent with the proposed changes for the 2021 Edition.

We have encouraged individuals to submit public comment so you can hear first hand how an ill-fitting, made for a man garment affects their work performance daily. Our proposal is based off our knowledge of the human body,
surveys and focus groups where feedback was taken by wildland firefighters to really hear what these individuals are wanting...while keeping them safe as a #1 priority.

Thank you in advance for your time.

Sincerely,

**Korena Hallam**

GREEN BUFFALOW, Limited  
Co-Founder | Designer  
Fort Collins, CO  

www. greenbuffalow.com  
*All images and designs are Intellectual Property of GREEN BUFFALOW, Limited.*
This is in regards to Proposed TIA 1422 on NFPA 1977.

As it currently stands minimum sizing requirements for Protective Upper Torso Garments [NFPA 1977-2016] shows only one table of sizing [Table 6.1.14.3(a)]. It appears these sizing measurements are based on men’s bodies. The TIA 1422 proposes labeling Table 6.1.14.3(a) as Minimum Sizing Requirements for Men’s Protective Upper Torso Garments and adding an additional table for Women’s Upper Torso Garments [proposed Table 6.1.14.3(d)]. TIA 1422 suggests the Minimum Sizing Requirements for Table 6.1.14.3(d) (TIA 1422, NFPA 1977-2016 #3).

I support and concur with all proposals in TIA 1422. As a female firefighter and manager this step would provide upper torso garments that fit a wider range of women’s bodies (along with the men’s sizing requirements). PPE that fits properly is safer. When garments do not fit properly the wearers are not as well protected, can’t perform their jobs most efficiently and effectively, and they sometimes modify the garments which further negates protective qualities.

Thank you
Riva Duncan
Interagency Fire Staff Officer
West Central OR Interagency Fire Zone (USFS/BLM)
To NFPA,
I am writing in support of Proposal TIA 1422 on NFPA 1977. As a petite woman in fire, I am constantly challenged to find clothes that fit. With the current iteration of the light green GSA nomex (aka. the pajama pants), I am between the xs (too small) and the small. Not wanting to wear too tight pants I tried the smalls, and was met at an airbase by a coworker who stated "oh my gosh those look ridiculous can't they find something to fit you?" because they are so big and baggy. Prior to that I tried the previous GSA dark green version and constantly had blisters on my thighs from the low crotch. If I pull them up to the correct place, the waist is around my ribs. So, I would buy my own "crew boss" pants, (aka MC Hammer pants) which did not chafe but do look funny with balloon legs and the long rise. I do know some women who have a tailor take in the legs to mitigate the "hammer time" effect.

I also struggle with shirts. As a petite person, I have to either cut the bottom of my nomex (gaah! destroying government property) or stuff the knee length fabric into my pants, which given the long rise mentioned above there is room there but it just looks silly on me, like ?I have fabric stuffed in my pants, which I do.

I have been in wildland fire for 24 years. I am a professional and strive to look the part, but it is hard with such currently ill fitting clothing. Please allow these new standards to allow for clothes that fit us all!

Thank you for your consideration.
Sonya Straka

Colorado Division of Fire Prevention and Control
Aviation Specialist (5 years)
USFS Wildland firefighter (17 years)
Larimer County Wildland Firefighter (2 years)
TIA Log NO. 1422
NFPA 1977-2016 Edition
Women’s Sizing Revisions

True North Gear strongly supports the changes outlined in TIA Log No. 1422 as proposed by Korena Hallam of Green Buffalow. Through recent surveys with close to 50 female wildland firefighters, we gathered data that supports not only the suggested measurement changes, but the emergency nature of the proposal as well.

After reviewing statements on fit from our survey respondents, one-on-one interviews, body measurements collected from ten female wildland firefighters, and ASTM anthropometric standards, we have determined that the measurements put forward in #1422 would significantly improve shirt fit and functionality for wildland women with a wide range of body types. Although the standard is taken to be unisex, the measurements were made for the male body. Men would never have to wear uniforms made for women’s curves, and it has been long overdue that women gain that same right.

We learned from these one-on-one interviews and the survey that wearing the current men’s-fit wildland shirts causes not only discomfort but makes their jobs significantly more dangerous than if they had women’s-fit PPE. The risks outlined to us in the survey results included snagging, poor mobility, and increased fatigue. Furthermore, many women consider their PPE to be a direct safety hazard. Examples of these fit-related situations included embers going into too-loose cuffs, getting caught on rocks and barbed wire due to the large sizes needed to accommodate the bust and hips, and having to make uncertified alterations to their PPE to make it wearable.

When asked, “In general, how would you rank the fit and comfort of your go-to wildland shirt?”, 60% of the 45 respondents gave their shirts a 3 or less (out of 5). When asked the same question about the functionality of their go-to wildland shirt, 57.7% gave their shirt a 3 or less.

A fit standard that hinders women’s movement undermines the standard’s very mission “to protect against the adverse environmental effects encountered by personnel performing wildland fire fighting operations” by creating a secondary adverse environmental effect in the form of PPE fit. We hope that you take the time to consider the importance of the standard amendment to all of the women in wildland as you evaluate the proposal put forth by Green Buffalow.

Sincerely,

Emelia Black, Product Designer
Michael Batson, Product Development Manager
Steve Misiano, President
Memorandum

Date: 4/22/19
To: Technical Committee on Wildland Fire Fighting Protective Clothing & Equipment
From: California Prison Industry Authority • 560 East Natoma Street • Folsom, California 95630-2200
Subject: NFPA 1977-2016 EDITION TENTATIVE INTERIM AMENDMENT (TIA) LOG NO. 1422 - COMMENTS

California Prison Industry Authority (CALPIA) has been manufacturing Wildland Fire Protective Clothing for over 25 years. In 2011 CALPIA attained ISO 9001 certification and began the process of manufacturing garments that met/exceeded NFPA 1977 standards. Third Party Certification (Underwriter Laboratories) to the NFPA 1977 standards was also achieved in 2011. We have worked closely with our customers to ensure all needs are met. We attend NFPA meetings to keep apprised of any potential changes to the standards that may affect manufacturers and customers.

CALPIA’s Engineering Team have reviewed TIA Log No. 1422. We agree that changes are necessary, however the proposed changes bring inconsistencies with the current standard. The following are comments regarding inconsistencies that we would like to have considered:

- The proposed ease does not meet current NFPA standards and is inconsistent from one size to the next.
  - This decreases the air gap and overall protection of the firefighters
    - This may cause a bigger emergency than current sizing.
- TIA uses a size range for the minimum requirement and should only identify one size as the minimum.
- TIA uses decimal points which is inconsistent with current standard measurement charts that use fractions.
- TIA has too much variability to the sizing requirements and is not consistent with sizing charts in current standard.
- TIA measurement chart is not consistent with full measurements in current charts.
  - Proposed chart has ½ circumference measurements, current charts have full circumference measurements.
- TIA proposed sleeve length measurement is unclear as to where the sleeve should be placed for consistent diagonal measurements. This measurement process allows for inconsistency and is not within industry standards.
  - This is also different than what’s currently in the standard.
- TIA total length measurements are unclear if it refers to the front, back or both sides of the garment.
  - Current standards include front and back measurements.
• TIA proposed changes may cause a delay in manufacturing.
  o Proposed changes would require additional 3rd part certification testing, for current manufacturers of women’s garments, which takes several months.

• TIA proposes changing the current NFPA image. There is no need to change or add a new image that will depict different measurements than current standard measurements.

As a manufacturer, we agree that changes are necessary to the next edition. TIA 1422 has too many errors and inconsistencies. We recommend that the current manufacturers work together and come up with a submission for the next edition that will best suit the end users. More time should be spent on this submission to ensure consistency is overall sizing standards. Additionally, we recommend that sizing charts be included in the annex, and not in the standard itself.

Karen Bengston
CALPIA
Sales Representative
Maynard, Mary

From: Korena Hallam <khallam@greenbuffalow.com>
Sent: Wednesday, May 29, 2019 10:25 PM
To: Fuller, Linda
Subject: NFPA 1977 Proposed TIA No. 1422 Appeal

May 29, 2019

To: NFPA Standards Council
From: Korena Hallam
Green Buffalow, Ltd.
712 Collingswood Dr.
Fort Collins, CO 80524
Subject: Formal Appeals Process – Issuance of Denial from the NFPA 1977 Technical Committee

To Whom It May Concern:

I, Korena Hallam, am writing on behalf of Green Buffalow, Ltd. to appeal failed Proposed TIA No. 1422 by the NFPA 1977 Technical Committee. We would like to address the following:

- Proposed TIA No. 1422 causes for inconsistencies with current NFPA 1977: 2016 Edition; Variable sizes and not providing enough points of measurement
  - As stated in the Public Comment we submitted, the table proposed in the TIA is similar to what we currently know is being proposed for the 2021 Edition. If the committee completely overhauls the size requirements for the next edition, this table can be changed as well. This is an opportunity to allow females to have sizing specific for them prior to 2021. The more “generic” table we submitted allows for creative and innovative designs giving firefighters the ability to do their job with ease. The TIA was not a last-ditch effort to find something that worked, methodology and knowledge of the human body went into what we submitted. Summer and I both have college degrees in Apparel Merchandising and Design and have worked in many different facets of the Apparel Industry. We’ve taken our educational background and work experience along with surveys and focus groups we’ve conducted for both men and women to create new sizing for our company. We did not submit a more detailed size chart due to the fact that each manufacturer should be allowed the freedom to dictate their own sizing; with the number one objective of keeping the firefighters safe.

- Agencies associated with “anecdotal” information provided/objective substantial data
  - Regarding the comment stating USFS employees would not have their needs met even if the NFPA 1977 Edition were changed due to government issued garments being built to Federal Standards/Forest Service Specifications…USFS employees as well as other municipalities are purchasing NFPA 1977 certified garments, out of their pockets because the ones issued to them are so outdated they need another option. The complaints are to both the government issued and purchased uniforms.

- Emergency nature
We proposed the TIA due to there not being a specific table for Women’s Upper Torso garments. If the lack of a women’s size table and the public comments submitted by individuals stating their issues is not enough, then we are uncertain of what else to provide for supporting documentation.

- Confusion for 3rd party certifiers

- As referenced in the public comment (stated below) we submitted would help to clear up the confusion:

  The reason for these proposed changes to the verbiage is to clear up any confusion for 3rd party certifiers involved. Currently, submitted as the following:

  - **A. Chest Circumference.** Measurement of upper torso garment from folded edge to folded edge, at base of armholes and multiplied by 2 to obtain circumference.
  - **B. Sleeve Length.** Measurement from midpoint of shoulder diagonally down sleeve to bottom edge of cuff.
  - **C. Waist Circumference.** A garment measurement from top edge of waistband from folded edge to folded edge, and multiplied by 2 to obtain circumference.
  - **D. Total Length.** Upper torso garment measurement from high point shoulder at base of collar to bottom edge of garment.

  If edits are allowed, we would like to have the points of measurement read as follows:

  - **A. NO CHANGE NEEDED**
  - **B. Sleeve Length.** Upper torso measurement taken at edge of shoulder at the shoulder seam straight down to the bottom of the sleeve cuff.
  - **C. Waistline Circumference.** Upper torso measurement taken from folded edge to folded edge at the midway point or smallest point on the garment body multiplied by 2 to obtain circumference.
  - **D. Total Length.** Upper torso garment measurement from high point of shoulder at the base of collar to the front bottom edge of garment.

  *We did notice in Figure 6.1.14.7(c) the sleeve measurement arrow has shifted down as it should go to the top of the shoulder to the base of the cuff.*

We ask that you take all the information and public comments in mind when determining if this TIA will pass or fail. Summer and I have been working on this project for the last 4 years and as stated above, have the educational background, work experience and have taken the time to send out surveys and host focus groups to gather as much information as possible to help establish a new fit. Most importantly what we have designed allows firefighters to do their job in a uniform that does not hinder their work performance, but helps them to accomplish their daily duties with ease while still being protected. As stated in our public comment, our proposal may not be the perfect solution, but it is a solution that will allow upper torso garments out there currently to still be certified, along with new innovative, ergonomic, protective designs to be certifiable as well.

Thank you for your time.

Respectfully,

Korena Hallam
Korena Hallam

GREEN BUFFALOW, Limited
Co-Founder | Designer
Fort Collins, CO
208-781-0727
khallam@greenbuffalow.com
www.greenbuffalow.com

*All images and designs are Intellectual Property of GREEN BUFFALOW, Limited.*
In response to TIA No. 1422, NFPA 1977

As Chair of NFPA 1977 I am opposed to TIA 1422 for the following:

The proposed change will:
- Create inconsistency within the standard
- Likely reduce ease and not meet current NFPA requirements
  - Ease is essential for the protection of wildland firefighters from heat and burn injuries

It is not clear how the variability in the sizing requirements will make better fitting garments.

Figures presented in the TIA will present problems for certifying organizations from applying consistent and accurate measurements.

The task group assigned to study and report on the sizing issue did not provide any qualitative or quantitative data to support the proposed sizing table.

No field tests or wear trial data were provided to support the sizing table. Wildland firefighter safety and comfort for essential PPE needs to be field tested before introducing significant changes as this TIA would do.

Sincerely,

George Broyles
Fire & Fuels Project Leader
US Forest Service
p: 208.387.5638
gbroyles@fs.fed.us
3833 S. Development Ave.
Boise, ID 83705

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May 28, 2019

Jim Pauley  
President & Chief Executive Officer

George Broyles  
Chair, Wildlife Fire Fighting Protective Clothing and Equipment Committee

Kerry M. Bell  
Chair, Standards Council

National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02169-7471

Dear Messrs. Pauley, Broyles, and Bell:

I write to urge the National Fire Protection Association (NFPA) to adopt proposed changes to the *Standard on Protective Clothing and Equipment for Wildland Fire Fighting*, NFPA 1977 (the "Standard"), that would add women’s uniform specifications for Protective Upper Torso Garments, which currently only provide for men’s sizing. Without these much-needed changes to the outdated Standard, female wildland firefighters will continue to risk harm and injury from ill-fitting uniforms designed for men or be forced to sign liability waivers to be able to wear non-compliant women’s uniforms.

I have heard testimonies from women for whom the NFPA 1977–compliant “standard” uniforms are ill-fitting, restrict movement or require constant readjustment, and even cause serious chafing that leads to bleeding. Exacerbated by the physically demanding nature of wildland firefighting, these fit issues increase the hazards of an already dangerous job. In the words of one female firefighter, “I’d like to work in PPE that helps my performance, not hinder it. … I need to be able to run from fire at any time.”

The current gap in the Standard would be corrected by Tentative Interim Amendment (TIA) Log No. 1422, to be reviewed by the Technical Committee overseeing the change, the Wildlife Fire Fighting Protective Clothing and Equipment Committee, and then the Standards Council.

Right now, the Standard has only one table setting forth sizing requirements. Though it does not say so, the table sets forth sizes for men. Manufacturers are already making Personal Protective Equipment (PPE) for women, so it makes little sense that NFPA 1977 does not yet include such specifications.
Uniforms that do not fall under the sizing specifications of the Standard are deemed “out of compliance” with field safety standards, including those for federal wildfire management agencies, and purchases often need to be approved by local command and specially ordered at additional cost to the unit. Not only is it difficult to procure the correctly sized uniforms, government regulations then require women to sign a risk waiver releasing the government from all liability if an injury occurs while wearing the non-compliant women’s uniform. Because extreme risk is an everyday part of wildland firefighting, this waiver deters women from wearing women’s uniforms, forcing them to endure discomfort and be subject to a higher risk of injury from wearing poorly fitting uniforms.

The NFPA can easily fix this problem. Once the NFPA approves the addition of women’s sizing in the TIA, it will effectively become part of the Standard and, the red tape being removed, the federal firefighting agencies will be able to legally and expeditiously outfit female firefighters properly with women’s uniforms.

The current specifications in the Standard harm the many courageous women who serve as wildland firefighters, protecting our natural lands and property from the destruction of wildfires. For these reasons, I strongly encourage you to approve TIA No. 1422 without delay.

I appreciate your prompt attention to this important matter and look forward to the day when women are fully integrated into our firefighting corps, with all the necessary gear and equipment they need to do their job on the fire line.

Sincerely,

Jackie Speier
Member of Congress
From: Vince Diaz [mailto:vince@atlanticthread.com]
Sent: Tuesday, June 11, 2019 3:10 PM
To: Maynard, Mary <mmaynard@NFPA.org>
Cc: gbroyles@fs.fed.us; Haskell, William (CDC/NIOSH/NPPTL/CVSDB) <czi8@cdc.gov>
Subject: Appeal to NFPA Standards Council re TIA No. 1422, NFPA 1977

Attention: Ms. Mary Maynard

The following comments are in response to the appeal of a TIA regarding the sizing of garments worn by female wildland firefighters.

Because NFPA Technical Committees have a responsibility to provide data and a strong rationale for making changes that can affect the form, fit, and function of protective clothing, it is important to have substantiation for the new sizing requirements for garments worn by female personnel that has been supported by field trials of garments.

It is known that the USDA Forest Service has collected data from male firefighters for more than 30 years. These data can provide confidence that the current measurement tables have the necessary ease. It is also known that there have been a number of female firefighters who have worn the USDA garments during this same 30 year time frame... to include the current chief of the service. The proposed TIA does not provide sufficient objective data from field testing that would indicate how female firefighters will be better served.

While the sizing issue, as noted in the TIA goes back a number of years, it would be reasonable for two or more garment manufacturers, during the next five year cycle of NFPA 1977, to propose sponsoring a Female Sizing Program field trial. The field trial would enable a group of 25 to 35 female firefighters to complete a 12 month evaluation of wildland firefighting garments using the proposed sizing tables.

The field trials could be followed up with surveys that evaluated the fit, form, and function of these garments by the field test participants. The data could then be combined with historical information about why the project was done so that the new sizing proposals could be made part of the NFPA 1977 standard as either a second TIA before the next revision date, or incorporated as a revision. In either case, the data from the field trials and the participant surveys will provide validation with a strong foundation based on objective data.

Please advise if there is anything else that needs to be done.

Best wishes,
Vince Diaz

Vincent Diaz
President
Atlantic Thread & Supply Co., Inc.
8515 Kelso Drive
Baltimore, MD 21221
410-687-9424
1. Add new paragraphs 6.6.4.3, 6.6.4.3.1 and 6.6.4.3.2 to read as follows:

6.6.4.3 An optional supplemental female connection to the EBSS shall be permitted.
6.6.4.3.1 If the EBSS includes an optional supplemental female connection, the supplemental female connection shall be visually and tactiley distinguishable from the primary female fitting.
6.6.4.3.2 If the EBSS includes an optional supplemental female connection, the supplemental female connection shall meet the requirements of Section 6.6, excluding 6.6.4.1 and 6.6.4.2.

Substantiation: The 2018 edition of NFPA 1981 mandates incorporation of a defined common fitting on Emergency Breathing Safety Systems on SCBA, called a UEBSS. As currently drafted, NFPA 1981 does not permit use of any fitting other than the UEBSS. The TIA allows manufacturers to offer an optional additional EBSS fitting that would maintain compatibility between SCBA certified to the 2018 edition and SCBA from the same manufacturer certified to earlier editions.

The UEBSS fitting is different from the fittings previously used by the two manufacturers with the largest number of SCBA in service in the US, which in total comprise at least 90% of SCBA in service. An SCBA with EBSS certified to the 2018 edition of NFPA 1981 is therefore incompatible with at least 90% of SCBA in service, including SCBA from the same manufacturer certified to earlier editions of NFPA 1981. If a fire department purchases new SCBA, they would not be compatible with its existing fleet. Although manufacturers are likely to obtain approval against earlier editions of NFPA 1981 for SCBA with the new UEBSS, even when this is available, fire departments would be forced to retrofit all of their SCBA. Adopting the TIA will allow manufacturers to offer a backwards-compatible fitting on 2018 SCBA as a simple, low cost option for fire departments to maintain compatibility between pre- and post-2018 SCBA. The TIA will allow a third fitting as an option and not a requirement, therefore each fire department would be free to make its own determination as to how it will maintain compatibility among its SCBA.

Emergency Nature: The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action.

This TIA is proposed to correct a circumstance created in the 2018 edition of NFPA 1981 that has had an adverse impact on the SCBA product and was overlooked and/or was without adequate technical justification. As of September 3, 2019, all EBSS on new SCBA that have EBSS must employ the defined UEBSS fittings for the SCBA to be certified under NFPA 1981. As noted above, following that date, the EBSS on new SCBA will not be compatible with those of manufacturers whose SCBA comprise over 90% of units in the field. A department buying new SCBA will be forced to place firefighters in a situation in which their EBSS will not connect with those of other departments with the same manufacturer’s SCBA in mutual aid situations. Furthermore, any department purchasing new SCBA while retaining pre-2018 SCBA will be forced to put its firefighters in a situation in which their EBSS will not connect with those of their colleagues in the same department. These situations could easily result in injury or death of a firefighter whose standard operating procedures include use of EBSS.
MEMORANDUM

TO: Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

FROM: Yvonne Smith, Project Administrator

DATE: April 26, 2019

SUBJECT: NFPA 1981 Proposed TIA No. 1420 FINAL CC BALLOT RESULTS

The public comment circulation has passed, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

29 Eligible to Vote
8 Not Returned (Area, Barker, Farley, Hosea, Legendre, Mauti, Reall, Traynor)

<table>
<thead>
<tr>
<th>Correlation Issues</th>
<th>Emergency Nature</th>
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<tbody>
<tr>
<td>5 Abstentions (Allen, Gleason, Haskell, III, Lehtonen, Newsom)</td>
<td>4 Abstentions (Allen, Gleason, Haskell, III, Newsom)</td>
</tr>
<tr>
<td>10 Agree (w/comment: McKenna, Weinstein)</td>
<td>6 Agree (w/comment: Morris)</td>
</tr>
<tr>
<td>6 Disagree (Hess, Lancaster, Morris, Stull, Swan, Van Lent)</td>
<td>11 Disagree (Haston, Hess, Lancaster, Lehtonen, McKenna, Menard, Stull, Swan, Tutterow, Jr., Van Lent, Weinstein)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[
\frac{29 \text{ eligible}}{2} = 14.5 = (15)\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 12 for Correlation Issues and 13 or Emergency Nature.

Correlation Issues: (29 eligible to vote - 8 not returned - 5 abstentions = 16 × 0.75 = 12)

Emergency Nature: (29 eligible to vote-8 not returned-4 abstentions = 17 × 0.75 = 12.75= 13)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the
notice of the TIA final ballot results are published in accordance with 4.2.6.

**Appeal Closing Date** for this TIA is **Wednesday, May 1, 2019**.
I AGREE there are no CORRELATION ISSUES in accordance with 3.4.2 and 3.4.3 of the NFPA Regs.

Eligible to Vote: 29
Not Returned: 8
Jack E. Reall, Roger L. Barker, Thomas M. Hosea, Jeff Legendre, Benjamin Mauti, James B. Area, W. Jason Traynor, Edmund Farley

<table>
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<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>10</td>
<td>I agree</td>
</tr>
<tr>
<td>David G. Matthews</td>
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<td></td>
</tr>
<tr>
<td>Joseph Arrington</td>
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<td>Agree</td>
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<td>David V. Haston</td>
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<tr>
<td>Bruce H. Varner</td>
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<td>Agree</td>
</tr>
<tr>
<td>Harry P. Winer</td>
<td></td>
<td>agree</td>
</tr>
</tbody>
</table>
Michael F. McKenna

No correlation issues, but believe that this TIA is not in the best interest of the fire service. The intent of the TC was to have a single coupling.

Steven H. Weinstein

I agree that there are no correlation issues with the proposed TIA. However, having said that, the intent of the Technical Committee was to standardize on one fitting and not allow any other EBSS fittings to be installed on the SCBA. The NFPA membership agreed with this approach when it overwhelmingly defeated a NITMAM that proposed the same thing at the NFPA Technical Session in Las Vegas in 2018. Based on comments at that session, the fire service in general feels that multiple fittings will only be confusing in an emergency situation where deployment of the EBSS could occur in dark, smoky conditions. This could create a safety hazard for the firefighter if fumbling around to find the right fitting costs precious time.

Robert D. Tutterow, Jr.

Disagree

Douglas Menard

Richard Weise

Agree

I agree there are no Correlation issues

Agree
Diane B. Hess

disagree. This TIA has been brought up before and discussed at the TC level in length. It was also presented in the Fall Report of the motions committee dated October 12, 2017 starting on page 21 of 29 (or 31 of 35) and was not approved.

Beth C. Lancaster

The request for a universal fitting was made by the TCC. The intention of the TC was to create a universal fitting.

William A. Van Lent

Evidence has not been substantiated that this TIA provides a known benefit or on balance, lessons a recognized hazard. The preliminary TC vote has defeated this initiative.

Jeffrey O. Stull

Correlation issues really don’t apply since this issue is solely within NFPA 1851. However, it appears that a similar proposal has been previously submitted and rejected at both the TC and TCC levels.

Rick L. Swan

This takes the universal out of the requirement. What is the issue of installing a universal connection as compared to installing this new optional EBSS. The committee has voted on several occasions to have the UEBSS and not a multiple connection option.

John H. Morris

New SCBA’s certified to the 2018 edition with the defined UEBSS fittings will not be compatible with the majority of existing SCBA’s with EBSS fittings certified to
Abstain

Jason L. Allen
Karen E. Lehtonen

Abstaining
I abstain from this item on the ballot as there does not appear to be correlation issues with other standards. However there is not agreement from the TC with this proposal proceeding thus it should be vetted through the normal NFPA revision process.

Amanda H. Newsom

Since there is no clear direction from the TC, UL will abstain

William E. Haskell, III

NIOSH position on this proposed TIA.

Patricia A. Gleason

With the complexities of the issue and the lack of a clear direction within the fire service community, SEI must abstain on this ballot.

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 29
Not Returned: 8
Jack E. Reall, Roger L. Barker, Thomas M. Hosea, Jeff Legendre, Benjamin Mauti, James B. Area, W. Jason Traynor, Edmund Farley

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<tr>
<th>Vote Selection</th>
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<th>Comments</th>
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<td>Agree</td>
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Correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action.
John H. Morris

The TIA is of an Emergency Nature, it is proposed to correct a safety issue created in the 2018 edition of NFPA 1981. All new SCBA’s certified to the 2018 edition with the defined UEBSS fittings will not be compatible with the majority of existing SCBA’s with EBSS fittings certified by previous editions. A department buying new SCBA will be forced to place firefighters in a situation in which their EBSS will not connect with those of other departments with the same manufacturer’s SCBA in mutual aid situations. Furthermore, any department purchasing new SCBA while retaining pre-2018 SCBA will be forced to put its firefighters in a situation in which their EBSS will not connect with those of their colleagues in the same department. These situations could easily result in injury or death of a firefighter whose standard operating procedures include use of EBSS.

Karen E. Lehtonen

I disagree with the substantiation for emergency nature. This should be properly vetted through the normal revision process if it is to be included in the standard.
Diane B. Hess
Disagree This TIA has been brought up before and discussed at the TC level in length. It was also presented in the Fall Report of the motions committee dated October 12, 2017 starting on page 21 of 29 (or 31 of 35) and was not approved.

Beth C. Lancaster
Disagree

David V. Haston
SCBA customers can upgrade/retrofit existing SCBA to incorporate the universal EBSS fitting. This TIA directly contradicts the intent of the technical committee (for a universal fitting).

William A. Van Lent
No evidence has been convincingly submitted identifying emergency nature.

Michael F. McKenna
There is no emergency issue. This topic has been discussed at length.

Jeffrey O. Stull
According to the TC ballot results, this issue has previously been debated and an attempt is being made to make universal fitting, which will require transition within the fire service but is the only way that this approach can be initiated.
Steven H. Weinstein

Incompatibility within a department or with neighboring departments can be addressed through upgrade kits. They can easily be purchased at reasonable cost to allow fire departments to quickly standardize on the new EBSS fitting. This viable option eliminates any so-called "emergency" described in the TIA.

Rick L. Swan

Committee has voted several times to have a UEBSS and there is no emergency in this established in this TIA.

Robert D. Tutterow, Jr.

I see no emergency nature in a TIA that is not supported by the majority of the Technical Committee.

Douglas Menard

This ballet did not pass the TC for good reason. Universal fittings are what all manufacturers should be striving for. Ease of use is always preferred when designing components related to firefighter survival. Adding more fittings to the mix could easily make for a dangerous incompatibility issue between mutual aid departments using different SCBA.

Abstain

Jason L. Allen

I dont feel as if we should weigh in on this question vs leaving to the fire service.

Amanda H. Newsom

Since there is no clear direction from the TC, UL will abstain.

William E. Haskell, III

NIOSH position on this proposed TIA.
With the complexities of the issue and the lack of a clear direction within the fire service community, SEI must abstain on this ballot.
MEMORANDUM

TO: Technical Committee on Respiratory Protection Equipment
FROM: Yvonne Smith, Project Administrator
DATE: April 26, 2019
SUBJECT: NFPA 1981 Proposed TIA No. 1420 FINAL TC BALLOT RESULTS

The public comment circulation has passed, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA **HAS NOT** achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

32 Eligible to Vote
3 Not Returned (Anaya, Mundy, Radtke)

<table>
<thead>
<tr>
<th>Technical Merit:</th>
<th>Emergency Nature:</th>
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</thead>
<tbody>
<tr>
<td>4 Abstentions (Allen, Miles, Peterson, Sanders)</td>
<td>4 Abstentions (Allen, Miles, Peterson, Sanders)</td>
</tr>
<tr>
<td>6 Agree (w/comment; Trudgeon, Little)</td>
<td>7 Agree (w/comment; Almqvist, Trudgeon)</td>
</tr>
<tr>
<td>19 Disagree (Almqvist, Berning, Bernzweig, Brubaker, Cox, Dickson, Domitrovich, Gainey, Golla, Harkness, Hayes, Lancaster, Mayhue, Profit, Sell, Rossos, Yanagisawa, Tekelenburg, Weinstein)</td>
<td>18 Disagree (Berning, Bernzweig, Brubaker, Cox, Dickson, Domitrovich, Gainey, Golla, Harkness, Hayes, Lancaster, Mayhue, Profit, Sell, Rossos, Yanagisawa, Tekelenburg, Weinstein)</td>
</tr>
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</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

   \[
   \text{[32 eligible ÷ 2 = 16 + 1 = (17)]}
   \]

2) The number of affirmative votes needed to satisfy the ¾ requirement is 19.

   \[
   \text{(32 eligible to vote - 3 not returned - 4 abstentions = 25 ÷ 0.75 = 18.75)}
   \]

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5
days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

**Appeal Closing Date** for this TIA is **Wednesday, May 1, 2019.**
NFPA 1981 Technical Committee on Respiratory Protection Equipment Proposed Tentative Interim Amendment No. 1420 - Final Ballot Results

I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1420 to Add new paragraphs 6.6.4.3, 6.6.4.3.1 and 6.6.4.3.2.

| Eligible to Vote: 32 |
| Not Returned: 3 |
| William T. Mundy, Christopher Anaya, Timothy M. Radtke |

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Kenneth A. Pravetz
Ruby Ochoa
Mark Trudgeon

The substantiation submitted by Judge Morgan provides a valid rationale for the NFPA 1981 standard to allow the use of an alternative EBSS connection.

Kevin D. Lentz

Agree
The optional third fitting is needed to ensure that inter-department compatibility can still be achieved. Many departments replace their SCBA when they buy new apparatus. Because of this, two firefighters in the same station could waste time attempting to make the connection in the IDLH and cause an avoidable death or injury. I agree that a UEBSS is the right solution. Where I don’t agree is with the decision of all or nothing. Currently, we have compatibility issues between manufactures. The UEBSS is supposed to fix that issue but instead, it’s making things worse by causing compatibility issues between SCBA made by the same manufacture. Now I agree in a perfect world we should go from point A (current EBSS fittings) to Point B (UEBSS). Unfortunately, we don’t live in a perfect world! You can’t change every EBSS at the same time. Therefore, no one on this committee can say with 100% confidence that two firefighters wouldn’t be standing there with two different EBSS connections in the IDLH. At the end of the day, this is an option that departments can add and train personnel to use effectively in the IDLH. We are forcing departments to choose between being NFPA compliant or not. According to NFPA 1981 1.1.9 Nothing herein shall restrict any jurisdiction or manufacture from exceeding these minimum requirements. This exceeds the minimum requirements so I’m not sure why we are restricting ourselves. I understand this is a tough decision to make and no matter what lives will be at risk. Regardless of the outcome, I hope we make the right decision and everyone makes it home. I still believe that we should let the men and women who actually wear the SCBA and train with them to make this decision.

Judge W. Morgan

Disagree

Agree
Ed Golla  
Additional fittings could create confusion in an emergency situation.

William Dickson  
Two (2) points, first, I am of the posture less is more. The more fittings you place on the device the more complicated things become and in an emergency situation will cause issues. The second point is I am not a big fan of the way the TIA came about. There have been numerous meetings, why was the matter not discussed early on in the process.

Brian H. Cox  
Disagree

David T. Bernzweig  
This issue was already decided by the TC, TCC, and the NFPA membership at the annual meeting.
Robin R. Gainey

I am a voting member of the 1981 committee, currently the chair of the UEBSS working group. I represent the International Association of Fire Fighters on all respiratory protection committees. I am also a front line firefighter in a city that responded to over 12,000 incidents requiring potential SCBA use. I started in the fire service 40 years ago, and know the value of the 1981-2019 standard change on UEBSS first hand. The entire 1981 committee debated this issue at length and the debate was complete and insightful, with every voice given opportunity and consideration and was not "overlooked and/or was without adequate technical justification." (TIA). Firefighters that have long awaited what the adopted standard affords us; the opportunity to save our brothers and sisters by insuring that a universal SCBA emergency air connection is available in times of life safety issues, without confusion as to manufacture type. To allow the TIA’s introduction of "An optional supplemental female connection to the EBSS"(TIA) will reintroduce the very level of confusion that was decidedly not wished at the committee level. Allowed to be unchanged as adopted the 2019-1981 standard will, in time, remove any possible confusion. The incompatibility alluded to in the TIA addressing fire service organizations that obtain 2019 compliant SCBA are just as easily remedied by retro-fitting the older units with readily available 2019 UEBSS compliant fittings, making them universally compatible to all SCBA of the future. NIOSH has approved the technology making this connection safe, reliable and easy to use, and the only issue was a selection of a universal hose connection that all SCBA manufactures will be required to use, if they offer the UEBSS connection. For fire service workers in areas that have mutual aid fire departments, as is most of the country, with potentially different SCBA products on every fire scene, the current mandated universal connection will save lives in the future by removal of confusion during that most stressful of times in a firefighter emergency. It is not a matter of if, only a matter of when.
Joseph W. Domitrovich

The request for a universal fitting was made by the correlating committee. Backwards compatibility for older products is not always possible when making advancements in firefighter safety. Older SCBA can be retrofitted, this request may represent a manufacturer preference but is not supported from a technical standpoint. The manufacturers were well represented throughout the process.

Ryan Brubaker

I do not agree with the technical merits proposed in TIA 1420. The intention and direction of the committee was to create a universal fitting moving forward, this TIA contradicts the committees direction and intention.
Allen Ira Harkness

This proposal seems like a good idea, but there are issues not explained. --- No doubt the two manufacturer's have 90% of the market, as stated, but what is the actual number of SCBA in service with an NFPA approved EBSS component? That is, how big is this? --- Is this the best solution? EBSS is an optional component, not a minimum requirement. Obviously, upgrading the existing SCBA that have EBSS to conform with the new requirement would be the ideal solution. Is this an insurmountable problem? --- Would a backwards compatible supplemental fitting remove the need to ever upgrade the existing SCBA? --- What are the negatives of this proposal, what potential unintended consequences? The proposal includes a requirement that the supplemental fitting be visibly and tactiley distinguishable from the primary fitting, but in the event the firefighter trying to make the connection cannot see well enough, and wearing gloves may not be able to feel the difference, will the firefighter be trying to find the fitting and make the connection by trial and error? Is this acceptable to the firefighter? Is it possible this proposal would introduce a hazard? Perhaps this risk can be reduced adequately by design, but there are no design requirements in this respect or test and evaluation data discussed in order to remove concern.

Beth C. Lancaster

Technical Committee's intent was to require a Universal EBSS.
Steven H. Weinstein  The intent of the Technical Committee was to standardize on one fitting and not allow any other EBSS fittings to be installed on the SCBA. The NFPA membership agreed with this approach when it overwhelmingly defeated a NITMAM that proposed the same thing at the NFPA Technical Session in Las Vegas in 2018. Based on comments at that session, the fire service in general feels that multiple fittings will only be confusing in an emergency situation where deployment of the EBSS could occur in dark, smoky conditions. This could create a safety hazard for the firefighter if fumbling around to find the right fitting costs precious time.

Daniel N. Rossos  I believe it is very clear that multiple fittings on the EBSS could have catastrophic results for the end user.

Hans O. Almqvist  Multiple connections would create confusion that could lead to injury or death. Retrofitting of old equipment is a logistic matter only and could easily be achieved in the interest to shorten the time until all of the US fire service has the same fitting.

Albert Yanagisawa  The addition of a third fitting on the EBSS, as outlined in this TIA, increases the complexity to provide a firefighter requiring emergency breathing air. The objective of the TC during the drafting of the UEBSS policy was to ensure firefighters could rapidly connect the UEBSS in a dark heated environment with gloved hands. The idea of adding third fitting increases the risk to firefighter safety during a high stress environment with no visibility. The cost of retrofitting older SCBA to comply with NFPA 2019 1981 does not outweigh the increase in risk to firefighter safety.
Marco Tekelenburg

The allowance of a non-universal EBSS connection may negatively impact the ability to identify, select, and connect compatible EBSS connections during emergency SCBA operations. The allowance of a non-universal EBSS connection may perpetuate the availability of non-compatible EBSS connections in the fire service. SCBA manufacturers can seek approval and offer Universal EBSS components on previously approved and fielded SCBA. Correspondingly, SCBA customers can upgrade existing SCBA to standardize EBSS connections within and across fire departments. SCBA manufacturers, sales channel partners, and customers can define and implement time-efficient and cost-effective EBSS upgrade programs.

Steven K. Berning

The complexity of multiple fittings creates a hazard. The intent of the NFPA committee is to have a universal fitting. Retrofit kits are available from all SCBA manufacturers.
We disagree with the fundamentals of TIA Log No. 1420. This TIA seeks to offer an optional 3rd fitting for the UEBSS in order to make the device work with departments who have pre-2018 EBSS and choose not to update their SCBA to the UEBSS portion of the 2018 standard. While this may be a more logistically friendly approach, the danger this poses to the firefighter far outweighs any other consideration. If a (U)EBSS needs to be used in the line of duty, a firefighter is likely in the most dire of situations: the user is not able to receive sufficient breathable air from their SCBA. This HIGH stress situation must have the simplest set of actions to have any chance of survivability. Trying to figure out which of the multitude of connectors to attach while likely holding your breath in a fire with little to no visibility is extremely difficult and putting both firefighters engaged in the emergency in an even more dangerous situation. With two connectors on a pre-2018 pack and three connectors on a post-2018 pack, the firefighter will have a 1 in 6 chance of finding the right combination of connectors compared to a 1 in 2 chance of connecting correctly in a UEBSS to UEBSS situation. The proposed TIA includes wording to make the fitting visually and tactically distinguishable. However, in the stress of the situation with bulky turnout gloves, having a tactically distinguishable fitting does not give any assurance that a firefighter will be able to find this fitting efficiently in situations where cognitive abilities to make decisions are already heavily compromised.
Robert Sell

I do not agree with the Technical Merits of the proposed TIA Log No. 1420: 1) The EBSS was discussed, developed and implemented with the 2013 edition of the standard. During these discussions the universal fitting was also considered but it was not implemented and it was held over for the next edition. 2) During the development and discussions of the 2018 edition of the standard, the universal fitting was again reviewed and evaluated by the manufacturers with an agreeable solution reached by the Technical Committee and the UEBSS was implemented. 3) The TC has recognized that with each edition of the standard that it does take time for new models to be integrated into the market.

Kenneth Hayes

Universal fittings are what all manufacturers should be striving for. Ease of use is always preferred when designing components related to firefighter survival.

Bryan Profit

This would take away from a universal connection, meaning one connection. The purpose of one universal connection is for neighboring departments with different SCBAs can still safely perform RIT operations in a quick and safe manner without having to mess around with multiple connections.

Abstain

I am abstaining from this vote as I feel its something the fire service should decide.

Jason L. Allen
As a result of the complexities of the issue, as well as the fact that there are differences within the Fire Service as to its technical merit, SEI is abstaining on this ballot.

Comment: The presence of an EBSS or UEBSS on an SCBA is not required as part of a NIOSH approved NFPA 1981 compliant device. As such, NIOSH will abstain on this TIA request.

The presence of an EBSS or UEBSS on an SCBA is not required as part of a NIOSH approved NFPA 1981 compliant device. As such, NIOSH will abstain on this TIA request.

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the instruction box.

Eligible to Vote: 32
Not Returned: 3

Vote Selection: Agree

Votes: 7
Comments:
Kenneth A. Pravetz Agree For reason A.
Ruby Ochoa agree
Mark Trudgeon The substantiation submitted by Judge Morgan identifies why urgent action is needed to avoid foreseeable safety concerns and to make the change in the current edition of 1918 rather than waiting for the next revision.

Hans O. Almqvist Multiple connections would create confusion that could lead to injury or death.

Kevin D. Lentz A. The standard contains an error or an omission that was overlooked during the regular revision process.

Jamie Dean Little A. B. C. F.
Judge W. Morgan

The standard contains an error or an omission that was overlooked during the regular revision process.

Disagree

Ed Golla
Not necessary

William Dickson
Comments are those indicated in question number one.

Brian H. Cox
Disagree

David T. Bernzweig
The TC was aware of and acted on this issue during the last revision.

Robin R. Gainey
This issue has been debated and denied by both the full 1981 Committee and last year's NFPA National Conference meeting.

Joseph W. Domitrovich
The technical merit of the TIA is not valid, therefore the emergency nature cannot be substantiated. The TIA has the potential to reduce firefighter safety, as identification of an additional fitting in a low visibility/high stress environment, while wearing gloves, could be problematic.

Ryan Brubaker
This issue is non emergent in nature, as it has been discussed at length over to course of the entire revision process.

Allen Ira Harkness
I don't believe this matter was inadvertently overlooked by the technical committee. There is not an adverse impact on the product or method. The idea of the proposed supplemental fitting for backwards compatibility seems like a good idea, but there are issues not worked out in order to be confident that it would be the right or necessary thing to do.

Beth C. Lancaster
Disagree.

Steven H. Weinstein
Incompatibility within a department or with neighboring departments can be addressed through upgrade kits. They can easily be purchased at reasonable cost to allow fire departments to quickly standardize on the new EBSS fitting. This viable option eliminates any so-called "emergency" described in the TIA.
Daniel N. Rossos  
I Disagree that this TIA is of an emergency nature, and furthermore, has been vetted by the Committee and through the NITMIM process. I believe it is very clear that multiple fittings on the EBSS could have catastrophic results for the end user.

Albert Yanagisawa  
The emergency nature of this TIA can be mitigated by retrofitting older SCBA’s with an upgrade kit.

Marco Tekelenburg  
The standard does NOT contain an error or an omission that was overlooked during the regular revision process. The Technical Committee on Respiratory Protection Equipment intentionally specified Universal EBSS connection design requirements and intentionally excluded non-universal EBSS connections. The Technical Committee’s actions took into account the considerations noted in the ‘Technical Merits’ comments.

Steven K. Berning  
The complexity of multiple fittings creates a hazard. The intent of the NFPA committee is to have a universal fitting. Retrofit kits are available from all SCBA manufacturers.
Clint Mayhue

This is NOT of an emergency nature due to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action. This was not inadvertently overlooked as the committee was quite deliberate in this last five year cycle in settling on a single fitting moving forward. The main point of this evolvement in the standard is to obsolete the multitude of EBSS fittings found on NFPA approved products today so there is no confusion or question on compatibility when the critical time comes to use the (U)EBSS. The second portion of this emergency nature reason suggests the change was made without adequate technical (safety) justification for the action. The safety of the fire fighter must be first and foremost in these decisions and giving them a 3rd fitting choice to process in a likely life or death situation is far more dangerous than having a standard UEBSS available to all users.

Robert Sell

I do not agree with the Emergency Nature of the proposed TIA Log No. 1420: 1) The TC members and comments from the Fire Service over the years have requested a universal fitting for fire fighter support during mutual aid situations. It seems that the same examples which were used to support the universal fitting are the same which is being used to substantiate the emergency nature of this TIA. 2) Since the inception of the NFPA 1981:1987 edition of the standard the Technical Committee has realized that new changes to the standard take time to enter the market. This is one of the reasons why the TC has chosen the 15 service life of the SCBA when NFPA 1852 was developed.

Kenneth Hayes

See above
This would take away from a universal connection, meaning one connection. The purpose of one universal connection is for neighboring departments with different SCBAs can still safely perform RIT operations in a quick and safe manner without having to mess around with multiple connections.

Abstain
Jason L. Allen
Stephen R. Sanders

As a result of the complexities of the issue, as well as the fact that there are differences within the Fire Service as whether this issue is of an emergency nature, SEI is abstaining on this ballot.

Comment: The presence of an EBSS or UEBSS on an SCBA is not required as part of a NIOSH approved NFPA 1981 compliant device. As such, NIOSH will abstain on this TIA request.

Jeffrey Peterson

The presence of an EBSS or UEBSS on an SCBA is not required as part of a NIOSH approved NFPA 1981 compliant device. As such, NIOSH will abstain on this TIA request.
Re: TIA #1420

I am a voting member of the 1981 committee, currently the chair of the EBSS working group. I represent the International Association of Fire Fighters on all respiratory protection committees. I am also a front line firefighter in a city the responded to over 12,000 incidents requiring potential SCBA use. I started in the fire service 40 years ago, and know the value of the 1981-2019 standard change on UEBSS first hand.

The entire 1981 committee debated this issue at length and the debate was complete and insightful, with every voice given opportunity and consideration and was not "overlooked and/or was without adequate technical justification." (TIA).

Firefighters that have long awaited what the adopted standard affords us; the opportunity to save our brothers and sisters by insuring that a universal SCBA emergency air connection is available in times of life safety issues, without confusion as to manufacture type. To allow the TIA's introduction of "An optional supplemental female connection to the EBSS" (TIA) will reintroduce the very level of confusion that was decidedly not wished at the committee level. Allowed to be unchanged as adopted the 2019-1981 standard will, in time, remove any possible confusion.

The incompatibility alluded to in the TIA addressing fire service organizations that obtain 2019 compliant SCBA are just as easily remedied by retro-fitting the older units with readily available 2019 EBSS compliant fittings, making them universally compatible to all SCBA of the future.

NIOSH has approved the technology making this connection safe, reliable and easy to use, and the only issue was a selection of a universal hose connection that all SCBA manufactures will be required to use, if they offer the EBSS connection. For fire service workers in areas that have mutual aid fire departments, as is most of the country, with potentially different SCBA products on every fire scene, the current mandated universal connection will save lives in the future by removal of confusion during that most stressful of times in a firefighter emergency. It is not a matter of if, only a matter of when.

Robin Gainey
Foran, Rosanne

From: Clint Kaller
Sent: Wednesday, March 6, 2019 1:38 AM
To: TIA
Subject: Proposed TIA - 1420

NFPA 1981 - TIA Log 1420

Action: Reject additional language proposed for paragraphs 6.6.4.3, 6.6.4.3.1 and 6.6.4.3.2

Substantiation:

As with all changes to a standard some degree of incompatibility is a possibility. When the UAC was adopted not all SCBA’s included this safety feature. In time the safety feature or fitting becomes universal as older SCBA’s are replaced or retired.

The use of EBSS or UEBSS is a procedure usually performed in a high stress situation in little to no visibility while wearing structural firefighting gloves. The idea that the additional fitting will be visually and tactically distinguishable in adverse conditions is highly questionable. The addition of a third fitting will surely add confusion to a high stress operation.

Submitted by;
Clint Kaller
Retired Los Angeles County Fire Department Captain
Ex NFPA 1981 Technical Committee Principal Member
1. Revise 8.4.12.3 to read as follows:

8.4.12.3 Sample closure assemblies seams shall be evaluated against a subset of the chemicals specified in 8.4.4.1 that shall include the following:

…

Substantiation: This TIA addresses an error in the 2018 Edition of NFPA 1992. Closures are intended to be tested for chemical barrier.

Emergency Nature: The standard contains an error or an omission that was overlooked during the regular revision process.

Barrier testing of closures has been an integral part of NFPA 1991 and NFPA 1992 since their inception. Closures should be subjected to testing similar to garment seams and garment materials in terms of strength and barrier.
MEMORANDUM

TO: Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

FROM: Yvonne Smith, Project Administrator

DATE: July 1, 2019

SUBJECT: NFPA 1992 Proposed TIA No. 1428 FINAL CC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA HAS achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

30 Eligible to Vote
7 Not Returned (Fargo, Farley, Haston, Legendre, Traynor, Van Lent, Varner)

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<th>Correlation Issues:</th>
<th>Emergency Nature:</th>
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<tbody>
<tr>
<td>0 Abstentions</td>
<td>0 Abstentions</td>
</tr>
<tr>
<td>23 Agree</td>
<td>21 Agree</td>
</tr>
<tr>
<td>0 Disagree</td>
<td>2 Disagree</td>
</tr>
<tr>
<td>(Lancaster, Matthews)</td>
<td></td>
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</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

   [30 eligible ÷ 2 = 15 + 1 = (16)]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 18.

   (30 eligible to vote - 7 not returned - 0 abstentions = 23 × 0.75 = 17.25)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is **July 6, 2019**.
NFPA 1992 Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment Proposed Tentative Interim Amendment No. 1428 - Final Ballot Results

I AGREE there are no CORRELATION ISSUES in accordance with 3.4.2 and 3.4.3 of the NFPA Regs.

Eligible to Vote: 30
Not Returned : 7
Cristine Z. Fargo, David V. Haston, Jeff Legendre, William A. Van Lent, Bruce H. Varner, W. Jason Traynor, Edmund Farley

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<tr>
<td>Agree</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Jason L. Allen</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Patricia A. Gleason</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Jack E. Reall</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Joseph Arrington</td>
<td>i agree</td>
<td></td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Jeffrey O. Stull</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>David G. Matthews</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Roger L. Barker</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Patricia A. Freeman</td>
<td>Iagree</td>
<td></td>
</tr>
<tr>
<td>Michael F. McKenna</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Diane B. Hess</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>No correlating issues.</td>
<td></td>
</tr>
<tr>
<td>Thomas M. Hosea</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Harry P. Winer</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>James B. Area</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>John H. Morris</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Steven H. Weinstein</td>
<td>Agree.</td>
<td></td>
</tr>
<tr>
<td>Richard Weise</td>
<td>Agree</td>
<td></td>
</tr>
</tbody>
</table>
I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 30
Not Returned: 7
Cristine Z. Fargo, David V. Haston, Jeff Legendre, William A. Van Lent, Bruce H. Varner, W. Jason Traynor, Edmund Farley

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Jason L. Allen</td>
<td></td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td></td>
<td>A and B</td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Patricia A. Gleason</td>
<td></td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process. agree</td>
</tr>
<tr>
<td>Jack E. Reall</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Joseph Arrington</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Jeffrey O. Stull</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Roger L. Barker</td>
<td></td>
<td>The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Patricia A. Freeman</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Michael F. McKenna</td>
<td></td>
<td>A.</td>
</tr>
<tr>
<td>Diane B. Hess</td>
<td></td>
<td>A&amp;B</td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td></td>
<td>Agree with emergency nature.</td>
</tr>
<tr>
<td>Thomas M. Hosea</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td></td>
<td>The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
</tbody>
</table>
Harry P. Winer  
James B. Area  
John H. Morris  
Steven H. Weinstein  
Richard Weise  
Douglas Menard  
**Disagree**  
David G. Matthews  
Beth C. Lancaster  
**Abstain**  

A  
A  
A  
Reason A.  
Agree  
Agree  

2  
Needs further work by the TC  
TIA is not of an emergency nature.  

0
MEMORANDUM

TO: Technical Committee on Hazardous Materials Protective Clothing and Equipment

FROM: Yvonne Smith, Project Administrator

DATE: July 1, 2019

SUBJECT: NFPA 1992 Proposed TIA No. 1428 FINAL TC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA HAS achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

31 Eligible to Vote
6 Not Returned (Buck, D. Green, Kennedy, Kirsteins, Thompson, Wiseman)

Technical Merit:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Abstentions</td>
</tr>
<tr>
<td>25</td>
<td>Agree (w/comment: Baxter)</td>
</tr>
<tr>
<td>0</td>
<td>Disagree</td>
</tr>
</tbody>
</table>

Emergency Nature:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Abstentions</td>
</tr>
<tr>
<td>22</td>
<td>Agree</td>
</tr>
<tr>
<td>3</td>
<td>Disagree (Baxter, Lancaster, Horowitz)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[
31 \text{ eligible} \div 2 = 15.5 = (16)
\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 19.

\[
(31 \text{ eligible to vote} - 6 \text{ not returned} - 0 \text{ abstentions} = 25 \times 0.75 = 18.75)
\]

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is July 6, 2019.
I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1428 to Revise Section 8.4.12.3.

Eligible to Vote: 31
Not Returned: 6
Donald B. Thompson, Ted S. Buck, Dustin Green, Jeffrey Kennedy, Andra Kirsteins, Darrell B. Wiseman

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>William A. Fithian</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Jason L. Allen</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert E. Shelton</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Jeffrey O. Stull</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>Correct error or omission</td>
<td></td>
</tr>
<tr>
<td>Robert West</td>
<td>AGREE</td>
<td></td>
</tr>
<tr>
<td>Russell R. Greene</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Beth C. Lancaster</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Allen Ira Harkness</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Brian J. Clifford</td>
<td>I concur</td>
<td></td>
</tr>
<tr>
<td>Michael Ziskin</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Richard P. Daly, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Ulf Nystrom</td>
<td>Agree</td>
<td></td>
</tr>
</tbody>
</table>
Kyle Kerbow: A. The standard contains an error or an omission that was overlooked during the regular revision process.

James P. Zeigler: Agree

Jason Horowitz: Agree

Christina M. Baxter: Fixes typographical error in 8.4.12.3.

Susan L. Lovasic: Agree

Philip C. Mann: Agree

Nicholas Del Re: Agree

Ryan C. Hirschey: Agree

John E. Wisner, Jr.: Agree

Paul Dulisse: A

Disagree: 0

Abstain: 0

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the instruction box.

Eligible to Vote: 31
Not Returned: 6

Vote Selection | Votes | Comments
---|---|---
Agree | 22 | 
William A. Fithian | A |
Amanda H. Newsom | Agree |
The standard contains an error or an omission that was overlooked during the regular revision process.

A. The standard contains an error or an omission that was overlooked during the regular revision process.

A. The standard contains an error or an omission that was overlooked during the regular revision process.

A. The standard contains an error or an omission that was overlooked during the regular revision process.

A. The standard contains an error or an omission that was overlooked during the regular revision process.

A. The standard contains an error or an omission that was overlooked during the regular revision process.
Jason Horowitz  Not an emergency
Christina M. Baxter  While there is typographical error in 8.4.12.3, the
performance requirement referencing the test
method as well as the title for the 8.4.12 is
correct; therefore, I would not consider this
emergency in nature.

Abstain  0
1. Add new paragraphs 7.1.1.6 and 7.1.1.7 to read as follows:

**7.1.1.6** Where outer gloves are designed to be worn in conjunction with gloves attached to the ensemble, the outer gloves shall not collect liquid.

**7.1.1.7** Where outer boots are designed to be worn in conjunction with socks, the outer boots shall not collect liquid.

**Substantiation:** This TIA addresses a significant omission during the revision of NFPA 1992, 2018 Edition. NFPA 1992 (2018), as well as NFPA 1991 (2016) and NFPA 1994 (2018), allows use of multiple gloves to meet performance requirements for hand and foot protection. This requirement that liquid not collect between these layers is found in NFPA 1991 (7.1), for Class 1 of NFPA 1994 (2018, 7.1.1.3.1 & 7.1.1.3.2) and embedded in the Liquidtight Integrity test for NFPA 1994 Classes 2, 2R, 3 and 3R (8.4.7.1 & 8.4.7.2). There are no such requirements in Chapter 7 of NFPA 1992. Under the test method collection of water between the layers is grounds for failure (8.2.7.2), but this lacks a corresponding performance requirements in Chapter 7.

**Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process.

Multiple glove and footwear systems may involve materials with significantly different barrier performance and durability. Liquid pooling in the gloves or boots results in significantly high exposure. Hot environment found in the gloves and footwear accelerates permeation further adding the hazard of immersion of the glove or hand in hazardous liquids.
MEMORANDUM

TO: Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

FROM: Yvonne Smith, Project Administrator

DATE: July 1, 2019

SUBJECT: NFPA 1992 Proposed TIA No. 1429 FINAL CC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA has not achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

<table>
<thead>
<tr>
<th>Correlation Issues:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Abstentions</td>
<td>0 Abstentions</td>
</tr>
<tr>
<td>9 Agree (1 w/comment: Morris)</td>
<td>6 Agree</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[
\text{[30 eligible ÷ 2 = 15 + 1 = (16)]}
\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 17.

\[
(30 \text{ eligible to vote} - 8 \text{ not returned} - 0 \text{ abstentions} = 22 \times 0.75 = 16.5)
\]

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is July 6, 2019.
Results by Revision

I AGREE there are no CORRELATION ISSUES in accordance with 3.4.2 and 3.4.3 of the NFPA Regs.

Eligible to Vote: 30

Not Returned: 8

Roger L. Barker, Cristine Z. Fargo, David V. Haston, Jeff Legendre, William A. Van Lent, Bruce H. Varner, W. Jason Traynor, Edmund Farley

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Jack E. Reall
Agree
David G. Matthews  
Agree

Patricia A. Freeman  
I agree

Michael F. McKenna  
Agree

William E. Haskell, III  
No correlating issues.

Harry P. Winer  
agree

James B. Area  
Agree

John H. Morris  
Agree but needs to be resolved by TC

Steven H. Weinstein  
Agree.

Disagree  
13

Jason L. Allen  
Additional discussion is needed by the TC
Karen E. Lehtonen  
There remains question regarding this requirement and its application to NFPA 1992. The TC should have further discussion on this issue and determine the appropriate path forward.

Amanda H. Newsom  
Voting in support of the TC

Jeffrey O. Stull  
Additional discussion is needed by technical committee to determine correlation between standards

Joseph Arrington  
This TIA does not adequately address the issue.

David T. Bernzweig  
More work is needed by the TC to resolve this issue

Robert D. Tutterow, Jr.  
As written, this TIA does not fully address the issue. The TC should revise and resubmit.

Patricia A. Gleason  
More discussion is needed at the TC level to address inconsistencies.

Diane B. Hess  
The TIA raises a technical issues, that needs more discussion and better clarification

Thomas M. Hosea  
TC notes indicate more discussion is needed.

Richard Weise  
Additional information required, back to TC for review
Beth C. Lancaster

Correlation issues exist between NFPA 1991, 1992, and 1994. Further discussion is needed by the TC.

Douglas Menard

Send back to TC for more work that is needed.

Abstain

0

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 30

Not Returned: 8

Roger L. Barker, Cristine Z. Fargo, David V. Haston, Jeff Legendre, William A. Van Lent, Bruce H. Varner, W. Jason Traynor, Edmund Farley

<table>
<thead>
<tr>
<th>Vote Selection</th>
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<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
Jack E. Reall
Agree

Patricia A. Freeman
The standard contains an error or an omission that was overlooked during the regular revision process.

William E. Haskell, III
Agree with emergency nature.

Thomas M. Hosea
Concur the standard contains an error or omission.

Harry P. Winer
A

James B. Area
A

Disagree
16

Jason L. Allen
Additional discussion is needed by the TC

Karen E. Lehtonen
I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA.

Amanda H. Newsom
Voting in support of the TC
<table>
<thead>
<tr>
<th>Name</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeffrey O. Stull</td>
<td>This is not an emergency</td>
</tr>
<tr>
<td>Joseph Arrington</td>
<td>More discussion is needed by the TC</td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td>More work is needed by the TC to resolve this issue</td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td>Since the proposed TIA is not addressing the situation in context, it is not of an emergency nature.</td>
</tr>
<tr>
<td>Patricia A. Gleason</td>
<td>The TIA is not clear and requires additional TC deliberation.</td>
</tr>
<tr>
<td>David G. Matthews</td>
<td>Needs further work by the TC</td>
</tr>
<tr>
<td>Michael F. McKenna</td>
<td>This is not of an emergency nature as there is still work to be done.</td>
</tr>
<tr>
<td>Diane B. Hess</td>
<td>TIA does not support the emergency nature</td>
</tr>
<tr>
<td>John H. Morris</td>
<td>Needs to be resolved by TC</td>
</tr>
<tr>
<td>Steven H. Weinstein</td>
<td>Does not support the requirements for emergency nature and should have more TC discussion.</td>
</tr>
<tr>
<td>Name</td>
<td>Comment</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Richard Weise</td>
<td>Additional information required, back to TC for review</td>
</tr>
<tr>
<td>Beth C. Lancaster</td>
<td>TIA is not of an emergency nature.</td>
</tr>
<tr>
<td>Douglas Menard</td>
<td>Send back to TC for more work that is needed.</td>
</tr>
<tr>
<td>Abstain</td>
<td>0</td>
</tr>
</tbody>
</table>
MEMORANDUM

TO: Technical Committee on Hazardous Materials Protective Clothing and Equipment

FROM: Yvonne Smith, Project Administrator

DATE: July 1, 2019

SUBJECT: NFPA 1992 Proposed TIA No. 1429 FINAL TC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

31 Eligible to Vote
7 Not Returned (Buck, D. Green, Kennedy, Kirsteins, Shelton, Thompson, Wiseman)

Technical Merit: Emergency Nature:
0 Abstentions 0 Abstentions
11 Agree 12 Agree

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[31 \text{ eligible} \div 2 = 15.5 = (16)\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 18.

\[(31 \text{ eligible to vote} - 7 \text{ not returned} - 0 \text{ abstentions} = 24 \times 0.75 = 18)\]

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is July 6, 2019.
### I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1429 to Add new paragraphs 7.1.1.6 and 7.1.1.7.

**Eligible to Vote:** 31  
**Not Returned:** 7  
Donald B. Thompson, Robert E. Shelton, Ted S. Buck, Dustin Green, Jeffrey Kennedy, Andra Kirsteins, Darrell B. Wiseman

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Russell R. Greene</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Kyle Kerbow</td>
<td></td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Brian J. Clifford</td>
<td></td>
<td>I concur</td>
</tr>
<tr>
<td>Michael Ziskin</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>John E. Wisner, Jr.</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Richard P. Daly, Jr.</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>James P. Zeigler</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Robert West</td>
<td></td>
<td>agree</td>
</tr>
<tr>
<td>Nicholas Del Re</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Ryan C. Hirshey</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Paul Dulisse</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Disagree</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>William A. Fithian</td>
<td></td>
<td>Additional language is necessary to determine what is meant by collection of liquid, which will need to take place by the Technical Committee (TC).</td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td></td>
<td>This TIA does not correct the anticipated issue.</td>
</tr>
</tbody>
</table>
While it is recognized that there are inconsistencies between NFPA 1991 and 1992, this specific topic should be harmonized across all three standards -- NFPA 1991, 1992, and 1994 in a manner that permits uniform interpretation.

While this TIA points out technical issues with the standard as written the TIA does not necessarily solve them. The TC should address and submit a TIA or revise the standard accordingly.

TIA is not clear. Further discussion is needed by the TC at next meeting.

Cannot agree with TIA as written. More technical committee discussion required to resolve ambiguity.

This TIA does not solve the problem. "Collection of liquid" needs a definition. The issue is not specific to NFPA 1992 and needs further discussion by the TC.

This needs Technical Committee discussion. Additionally, this needs to define what "liquid collection" means including a test method and clear failure criteria. There is also no data provided to substantiate that liquid collection is a penetration concern. Furthermore, the current substantiation references permeation which is not part of NFPA 1992. This should be rejected and discussed as part of the 2020 1st draft.

The proposed additional language would harmonize NFPA 1992 with NFPA 1991; however, the committee has not had an opportunity to weigh in on this issue to determine if the proposed criteria are appropriate for NFPA 1992 products. There are potential issues that could arise if glove systems are viewed the same way as footwear systems.

Proposed new section 7.1.1.6, as written, raises many questions. Such as what does "collect" liquid mean for a woven or knit outer glove?
Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.

**Abstain** 0

---

**I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the instruction box.**

**Eligible to Vote:** 31  
**Not Returned:** 7  
Donald B. Thompson, Robert E. Shelton, Ted S. Buck, Dustin Green, Jeffrey Kennedy, Andra Kirsteins, Darrell B Wiseman

<table>
<thead>
<tr>
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<th>Votes</th>
<th>Comments</th>
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<td>Kyle Kerbow</td>
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<td>A</td>
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<td>Allen Ira Harkness</td>
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<td>A concur</td>
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<td>Brian J. Clifford</td>
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<td>Michael Ziskin</td>
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<td>John E. Wisner, Jr.</td>
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<td>James P. Zeigler</td>
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<td>Robert West</td>
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<td>agree</td>
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<tr>
<td>Nicholas Del Re</td>
<td></td>
<td>E</td>
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<tr>
<td>Ryan C. Hirschey</td>
<td></td>
<td>A</td>
</tr>
</tbody>
</table>
Paul Dulisse  
**Disagree**  
Requires additional discussion at the TC.

William A. Fithian  
This TIA does not correct the anticipated issue.

Amanda H. Newsom  
Additional work and clarification is needed

Jason L. Allen  
Additional efforts are need on the part of the technical committee to fully resolve these issues.

Jeffrey O. Stull  
I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA.

Karen E. Lehtonen  
Does not support emergency nature.

William E. Haskell, III  
TIA is not clear and is not of an emergency nature. Can be addressed in normal cycle.

Beth C. Lancaster  
The issue is not specific to NFPA 1992 and needs further discussion by the TC.

Ulf Nystrom  
No emergency nature

Jason Horowitz  
This topic would best be addressed in the next revision cycle.

Christina M. Baxter  
Proposed new section 7.1.1.6, as written, raises many questions. Such as what does "collect" liquid mean for a woven or knit outer glove?

Susan L. Lovasic  
Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.

Philip C. Mann  
Abstain  
0
1. Add new paragraph 7.6.2.8, and renumber subsequent paragraphs, to read as follows:

7.6.2.8 Class 4 garment closure assemblies shall be tested for closure strength as specified in Section 8.12, Seam/Closure Breaking Strength Test, and shall have a breaking strength of not less than 34 N/25 mm (7.5 lbf/1 in.).

2. Revise Annex A.7.6.2.9.1 to read as follows:

A.7.6.2.910.1 The requirement for 125 percent elongation is for the purpose of defining an interface material as elastomeric. If the material has less than a 125 percent elongation at rupture, then the criteria for 7.6.2.910 do not apply. Instead pertinent criteria in 7.6.2 are applied.

Substantiation: The TIA addresses a significant omission during the revision of NFPA 1994, 2018 Edition. This paragraph was deleted during the Second Draft process, but there is no justification or explanation in the published record why this paragraph was deleted. A similar requirement exists for Class 4R garments (7.7.2.8), Class 1 (7.1.2.7), Class 2 (7.2.2.6), Class 2R (7.3.2.5), Class 3 (7.4.2.9), Class 3R (7.5.2.9).

Emergency Nature: The standard contains an error or an omission that was overlooked during the regular revision process.

The closure is a critical and vulnerable component of the protective ensemble. The closures are often located on the front of the garment torso where they are subjected to direct exposure from splash or pressure contact exposed victims. This is a reasonable and critical vulnerability of the liquid chemical and biological protective garment. Lack of requirements on the closure strength places the responders at risk. The lack of this requirement leaves a known and serious deficiency in the performance of the NFPA 1994 products. Closure strength requirements exist for all other classes in NFPA 1994.
MEMORANDUM

TO: Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: June 27, 2019

SUBJECT: NFPA 1994 Proposed TIA No. 1431 FINAL CC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA HAS achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

30 Eligible to Vote
4 Not Returned (Farley, Legendre, Traynor, Varner)

<table>
<thead>
<tr>
<th>Correlation Issues:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Abstentions</td>
<td>0 Abstentions</td>
</tr>
<tr>
<td>24 Agree</td>
<td>25 Agree</td>
</tr>
<tr>
<td>2 Disagree (Barker, Bernzweig)</td>
<td>1 Disagree (Barker)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[30 \text{ eligible} \div 2 = 15 + 1 = (16)\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 20.

(30 eligible to vote - 4 not returned - 0 abstentions = 26 \times 0.75 = 19.5)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is Tuesday, July 2, 2019.
I AGREE there are no CORRELATION ISSUES in accordance with 3.4.2 and 3.4.3 of the NFPA Regs.

Eligible to Vote: 30
Not Returned: 4
Jeff Legendre, Bruce H. Varner, W. Jason Traynor, Edmund Farley

<table>
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<tr>
<th>Vote Selection</th>
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<tr>
<td>Agree</td>
<td>24</td>
<td>Jason L. Allen</td>
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<td>Karen E. Lehtonen</td>
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<td>Amanda H. Newsom</td>
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<td>William E. Haskell, III</td>
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<td>Jack E. Reall</td>
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<td>Cristine Z. Fargo</td>
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<td>Diane B. Hess</td>
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<td>Douglas Menard</td>
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<td>Richard Weise</td>
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<td>2</td>
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<tr>
<td>Disagree</td>
<td></td>
<td>David T. Bernzweig</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roger L. Barker</td>
</tr>
<tr>
<td>Abstain</td>
<td>0</td>
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</table>

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.
Eligible to Vote: 30  
Not Returned: 4  
Jeff Legendre, Bruce H. Varner, W. Jason Traynor, Edmund Farley  

<table>
<thead>
<tr>
<th>Vote Selection</th>
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<th>Comments</th>
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<tbody>
<tr>
<td>Agree</td>
<td>25</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process. Jason L. Allen A. The standard contains an error or an omission that was overlooked during the regular revision process. Robert D. Tutterow, Jr. A. The standard contains an error or an omission that was overlooked during the regular revision process. Cristine Z. Fargo A. The standard contains an error or an omission that was overlooked during the regular revision process. Patricia A. Freeman The standard contains an error or an omission that was overlooked during the regular revision process. Diane B. Hess A. Thomas M. Hosea A. Harry P. Winer A. Beth C. Lancaster A. Michael F. McKenna A. Douglas Menard Agree Jeffrey O. Stull A. William A. Van Lent Agree David G. Matthews A. James B. Area A. John H. Morris A. Steven H. Weinstein Reason A. Richard Weise Agree</td>
</tr>
</tbody>
</table>
MEMORANDUM

TO: Technical Committee on Hazardous Materials Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: June 27, 2019

SUBJECT: NFPA 1994 Proposed TIA No. 1431 FINAL TC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA has achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

31  Eligible to Vote
6  Not Returned (Thompson, Buck, Green, D., Kennedy, Dulisse, Kirsteins)

<table>
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<tr>
<th>Technical Merit:</th>
<th>Emergency Nature:</th>
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<tr>
<td>1  Abstentions (Greene, R.)</td>
<td>0  Abstentions</td>
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<tr>
<td>24  Agree (1 w/comment: Baxter)</td>
<td>24  Agree (1 w/comment: Baxter)</td>
</tr>
<tr>
<td>0  Disagree</td>
<td>1  Disagree (Horowitz)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[
\text{elig} = \frac{31}{2} = 15.5 = 16
\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is

- **18 for Technical Merit**
- **19 for Emergency Nature**

**Technical Merit:** (31 eligible to vote - 6 not returned - 1 abstentions = 24 × 0.75 = 18)
**Emergency Nature:** (31 eligible to vote - 6 not returned - 0 abstentions = 25 × 0.75 = 18.75)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

**Appeal Closing Date** for this TIA is **Tuesday, July 2, 2019**.
I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1431 to Add new paragraph 7.6.2.8 and Revis Annex A.7.6.2.9.1.

Eligible to Vote: 31
Not Returned: 6
Donald B. Thompson, Ted S. Buck, Dustin Green, Jeffrey Kennedy, Paul Dulisse, Andra Kirsteins

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<th>Vote Selection</th>
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<th>Comments</th>
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<tr>
<td>Agree</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>William A. Fithian</td>
<td>Agree</td>
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<tr>
<td>Amanda H. Newsom</td>
<td>Agree</td>
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<td>Jason L. Allen</td>
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<td>Jeffrey O. Stull</td>
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<td>Karen E. Lehtonen</td>
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<tr>
<td>William E. Haskell, III</td>
<td>Omission during revision process.</td>
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<tr>
<td>Kyle Kerbow</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
<td></td>
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<td>Beth C. Lancaster</td>
<td>Agree</td>
<td></td>
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<td>Allen Ira Harkness</td>
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<td>Brian J. Clifford</td>
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<td>Michael Ziskin</td>
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<tr>
<td>Richard P. Daly, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Ulf Nystrom</td>
<td>I agree with the submitter.</td>
<td></td>
</tr>
<tr>
<td>Robert E. Shelton</td>
<td>Agree</td>
<td></td>
</tr>
</tbody>
</table>
The absence of the closure strength requirement for Class 4 ensembles is considered an omission and error in the revision process and therefore should be addressed as soon as possible.

Susan L. Lovasic  
Philip C. Mann  
Nicholas Del Re  
Robert West  
Ryan C. Hirschey  
John E. Wisner, Jr.  
Darrell B Wiseman  
Disagree  
Abstain  

Russell R. Greene  
Do not disagree with the basic logic but do not understand enough without technical discussion whether the pass/fail criteria is appropriate.

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 31  
Not Returned : 6  

<table>
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<th>Vote Selection</th>
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<td></td>
</tr>
</tbody>
</table>
William A. Fithian
Amanda H. Newsom
Agree
Jason L. Allen
The standard contains an error or an omission that was overlooked during the regular revision process.

Russell R. Greene
A
Jeffrey O. Stull
A
Karen E. Lehtonen
A and B
William E. Haskell, III
Omission during revision process.
Kyle Kerbow
. The standard contains an error or an omission that was overlooked during the regular revision process.

Beth C. Lancaster
A
Allen Ira Harkness
A
Brian J. Clifford
Concur.
Michael Ziskin
A. The standard contains an error or an omission that was overlooked during the regular revision process.

Richard P. Daly, Jr.
A
Ulf Nystrom
The standard contains an error or an omission that was overlooked during the regular revision process.

Robert E. Shelton
A
James P. Zeigler
A
Christina M. Baxter
This would be considered emergency nature as there is currently no test incorporated within the standard for evaluating the closure strength on Class 4 ensembles.

Susan L. Lovasic
A. The standard contains an error or an omission that was overlooked during the regular revision process.

Philip C. Mann
A
<table>
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<tr>
<th>Name</th>
<th>Vote</th>
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<tr>
<td>Nicholas Del Re</td>
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<tr>
<td>Robert West</td>
<td>agree</td>
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<td>Ryan C. Hirschey</td>
<td>A</td>
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<td>John E. Wisner, Jr.</td>
<td>A</td>
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<tr>
<td>Darrell B Wiseman</td>
<td>A</td>
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<tr>
<td><strong>Disagree</strong></td>
<td>1</td>
</tr>
<tr>
<td>Jason Horowitz</td>
<td>This is an omission, but not an emergency</td>
</tr>
<tr>
<td><strong>Abstain</strong></td>
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</table>
Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents
TIA Log No.: 1432
Reference: 7.1.2.8(new), 7.1.2.9(new), 7.2.2.8(new), 7.3.2.8(new), 7.4.2.10(new), 7.5.2.10(new), 7.6.2.9(new), 7.7.2.9(new), 8.20.1.1, 8.20.11, 8.20.11.1, 8.20.11.2, and 8.20.11.3
Comment Closing Date: June 20, 2019
Submitter: James P. Zeigler, J.P. Zeigler, LLC
www nfpa org/1994

1. Add new paragraphs 7.1.2.8 and 7.1.2.9, renumber existing 7.1.2.8 and 7.1.2.9 as 7.1.2.11 and 7.1.2.12 respectively (see note), and Annex A, including cross references to read as follows:

7.1.2.8 Where Class 1 garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 1 garment closure assemblies shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of the Phi-X-174 bacteriophage for at least 1 hour.

7.1.2.9 Class 1 garment materials and seams shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of Phi-X-174 bacteriophage for at least 1 hour.

(Note: a new 7.1.2.10 is being submitted by another TIA No. 1433)

7.1.2.811 Class 1 Garment Visor Requirements.
7.1.2.811.1 Class 1 garment visor materials and seams shall be tested for permeation resistance …
7.1.2.811.1.1 Class 1 garment visor materials and seams shall be tested for penetration resistance …
7.1.2.811.2 Class 1 garment visor materials shall be tested for high mass impact resistance …
7.1.2.811.3 Class 1 garment visor materials shall be tested for resistance to flame impingement as specified in Section 8.27, Flammability Resistance Test, and shall have an afterflame time of not greater than 2.0 seconds and shall not melt and drip.
7.1.2.811.4 Class 1 garment visor material seams shall be tested for seam strength …
7.1.2.811.4.1 Seam breaking strength shall be considered acceptable where the material strength is less than the required seam strength specified in 7.1.2.811.4 provided the material fails without failure of the seam below the applicable forces specified in 7.1.2.811.4.

7.1.2.912 Class 1 Elastomeric Interface Material Requirements.
7.1.2.912.1* Elastomeric interface materials shall have an elongation at rupture …
7.1.2.912.1.1 Where the Class 1 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for penetration resistance …
7.1.2.912.2 Where the Class 1 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for permeation resistance …
7.1.2.912.3 Where the Class 1 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cut resistance …
7.1.2.912.4 Where the Class 1 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for puncture resistance …
7.1.2.912.5 Where the Class 1 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for ultimate tensile strength …
7.1.2.912.6 Where the Class 1 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cold weather performance …
7.1.2.912.7 Where the Class 1 garment includes elastomeric interface materials, each interface material shall be tested for resistance to flame impingement …

A.7.1.2.912.1 The requirement for 125 percent elongation is for the purpose of defining an interface material as elastomeric. If the material has less than a 125 percent elongation at rupture, the criteria for 7.1.2.912 do not apply. Instead, pertinent criteria in 7.1.2 are applied.

2. Add new paragraph 7.2.2.8 to read as follows:

7.2.2.8 Where Class 2 garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 2 garment closure assemblies shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of the Phi-X-174 bacteriophage for at least 1 hour.

3. Add new paragraph 7.3.2.8 to read as follows:

7.3.2.8 Where Class 2R garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 2R garment closure assemblies shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of the Phi-X-174 bacteriophage for at least 1 hour.

4. Add new paragraph 7.4.2.10 to read as follows:

7.4.2.10 Where Class 3 garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 3 garment closure assemblies shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of the Phi-X-174 bacteriophage for at least 1 hour.

5. Add new paragraph 7.5.2.10 to read as follows:

7.5.2.10 Where Class 3R garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 3R garment closure assemblies shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of the Phi-X-174 bacteriophage for at least 1 hour.

6. Add new paragraph 7.6.2.9 and renumber existing 7.6.2.8 and 7.6.2.9 as 7.6.2.10 and 7.6.2.11 respectively (see note) to read as follows:

7.6.2.9 Where Class 4 garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 4 garment closure assemblies shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of the Phi-X-174 bacteriophage for at least 1 hour.

(Note: a new 7.6.2.8 is being submitted by another TIA No. 1431)

7.6.2.810 Class 4 Garment Visor Requirements.
7.6.2.810.1 Class 4 garment visor materials shall be tested for high-mass impact resistance as specified in Section 8.13, Visor High-Mass Impact Resistance Test, and shall have no full-thickness punctures, cracks, holes, or fractures.
7.6.2.810.2 Class 4 garment visor material seams shall be tested for seam strength as specified in Section 8.12, Seam/Closure Breaking Strength Test, and shall have a breaking strength of not less than 34 N/25 mm (7.5 lb/f/ in.).
7.6.2.911 Class 4 Elastomeric Interface Material Requirements.
7.6.2.911.1* Elastomeric interface materials shall have an elongation at rupture of not less than 125 percent when tested as specified in Section 8.28, Ultimate Tensile Strength Test.  
7.6.2.911.2 Where the Class 4 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cut resistance as specified in Section 8.14, Cut Resistance Test, and shall have a blade travel distance of not less than 20 mm (0.8 in.).  
7.6.2.911.3 Where the Class 4 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for puncture resistance as specified in Section 8.15, Puncture Resistance Test 1, and shall have a puncture resistance of not less than 7 N (1.6 lbf).  
7.6.2.911.4 Where the Class 4 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for ultimate tensile strength as specified in Section 8.28, Ultimate Tensile Strength Test, and shall have an ultimate tensile strength of not less than 4 MPa (550 psi).  
7.6.2.911.5 Where the Class 4 garment includes elastomeric interface materials, each elastomeric interface gasket material shall be tested for cold weather performance as specified in Section 8.11, Cold Temperature Performance Test 1, and shall have a bending moment of not greater than 0.057 N·m (1/2 in.·lbf) at an angular deflection of 60 degrees at −25°C (−13°F).

7. **Renumber and revise Annex A.7.6.2.911 to read as follows:**  
A.7.6.2.911.1 The requirement for 125 percent elongation is for the purpose of defining an interface material as elastomeric. If the material has less than a 125 percent elongation at rupture, then the criteria for 7.6.2.911 do not apply. Instead pertinent criteria in 7.6.2 are applied.

8. **Add new paragraph 7.7.2.9, and renumber subsequent paragraphs, to read as follows:**  
7.7.2.9 Where Class 4R garment closures are not fully covered by a protective flap that is constructed of the same material or the garment. Class 4R garment closure assemblies shall be tested for resistance to liquid or bloodborne pathogens as specified in Section 8.20, Viral Penetration Resistance Test, and shall allow no penetration of the Phi-X-174 bacteriophage for at least 1 hour.

9. **Revise 8.20.1.1 to read as follows:**  
8.20.1.1 This test shall apply to Class 1, Class 2, Class 2R, Class 3, Class 3R, Class 4, and Class 4R garments, gloves, and footwear materials; garment and glove seams; and visors, visors; and garment closures not fully covered by a protective flap.

10. **Revise section 8.20.11 to read as follows:**  
8.20.11 Specific Requirements for Testing Garment or Glove Seams, and Garment Closures Not Covered by Protective Flap.  
8.20.11.1 Samples for conditioning shall be 600 mm (231/2 in.) lengths of prepared seam or closure or cut from ensembles.  
8.20.11.2 Seam specimens shall be prepared from seam or closure samples that have a minimum of 75 mm (3 in.) of material on each side of the seam or closure center. Permeation test specimens shall be cut such that the exact seam or closure center divides the specimen in half.  
8.20.11.3 Seam specimens shall be prepared representing each different type of seam or closure found in the garment, or shall be taken from each type of seam or closure found in the garment, including as a minimum the garment-to-garment material seams and the garment-to-visor material seams.

**Substantiation:** TIA addresses a significant omission during the revision of NFPA 1994, 2018 Edition. Testing of closure assembly barrier was overlooked in this revision to NFPA 1994. Barrier testing of closures has been an integral part of NFPA 1991 and NFPA 1992 since their inception. Closures should be subjected to testing similar to garment seams and garment materials in terms of strength and barrier.
While closure strength is addressed in the revision, but barrier requirements were overlooked. In addition, viral barrier testing of Class 1 seams was omitted, while requirements were provide for Class 2, 2R, 3, 3R, 4 and 4R seams.

NFPA 1991 and NFPA 1992 provide precedence to allow a protective cover over the closure assembly in lieu of testing of the closure. However, the protective performance of the closure protective cover needs to be defined.

**Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process.

The closure is a critical and vulnerable component of the protective ensemble. The closures are often located on the front of the garment torso where they are subjected to direct exposure from splash or pressure contact exposed victims. This is a reasonable and critical vulnerability of the liquid chemical and biological protective garment. Lack of requirements on the barrier performance of the closure places the responders at risk. The lack of this requirement leaves a known and serious deficiency in the barrier performance of the NFPA 1994 products.
No comments were received on this TIA, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA has not achieved the \( \frac{3}{4} \) majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

30 Eligible to Vote
5 Not Returned (Barker, Farley, Legendre, Traynor, Varner)

<table>
<thead>
<tr>
<th>Correlation Issues:</th>
<th>Emergency Nature:</th>
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<tbody>
<tr>
<td>0 Abstentions</td>
<td>1 Abstentions (Area)</td>
</tr>
<tr>
<td>10 Agree (I w/comment: Morris)</td>
<td>4 Agree</td>
</tr>
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</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of \( \frac{3}{4} \) of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[
30 \text{ eligible} \div 2 = 15 + 1 = (16)
\]

(2) The number of affirmative votes needed to satisfy the \( \frac{3}{4} \) requirement is 19 for Correlation Issues and 18 for Emergency Nature.

Correlation Issues: (30 eligible to vote - 5 not returned - 0 abstentions = 25 \( \times \) 0.75 = 18.75)
Emergency Nature: (30 eligible to vote – 5 not returned – 1 abstentions = 24 \( \times \) 0.75 = 18)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment
A. The standard contains an error or an omission that was overlooked during the regular revision process.

B. The NFPA Standard contains a conflict within the NFPA Standard or with another NFPA Standard.

C. The proposed TIA intends to correct a previously unknown existing hazard.

D. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

E. The proposed TIA intends to accomplish a recognition of an advance in the art of safeguarding property or life where an alternative method is not in current use or is unavailable to the public.

F. The proposed TIA intends to correct a circumstance in which the revised NFPA Standard has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process or was without adequate technical (safety) justification for the action.
Election:1994_A2017_FAE_AAC_TIA_Log1432_Ballot
Results by Revision

<table>
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<tr>
<td>William E. Haskell, III</td>
<td>Agree</td>
<td></td>
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<tr>
<td>Jack E. Reall</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Joseph Arrington</td>
<td>I agree</td>
<td></td>
</tr>
<tr>
<td>David V. Haston</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Cristine Z. Fargo</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Patricia A. Freeman</td>
<td>I agree</td>
<td></td>
</tr>
<tr>
<td>Harry P. Winer</td>
<td>AGREE</td>
<td></td>
</tr>
<tr>
<td>Michael F. McKenna</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>John H. Morris</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Steven H. Weinstein</td>
<td>Agree</td>
<td></td>
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<table>
<thead>
<tr>
<th>Disagree</th>
<th>15</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Jason L. Allen</td>
<td>This was not an omission for Class 1. Additional discussion is needed by the TC. There are correlation and requirement issues that need to be addressed by the committee in the revisions process not via this TIA.</td>
<td></td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td>Voting in support of the TC</td>
<td></td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td>More work is needed by the TC to resolve this issue</td>
<td></td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td>This TIA does not address the technical issues needed to resolve the problem.</td>
<td></td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td>This TIA requires further work by the TC</td>
<td></td>
</tr>
<tr>
<td>David G. Matthews</td>
<td>Additional language is necessary to address technical issues with the test method. Resolution between this and other standards requires resolution at the technical committee.</td>
<td></td>
</tr>
<tr>
<td>Patricia A. Gleason</td>
<td>The TIA brings up Class 1 and technical issues, recommend the TC form a TG to discuss</td>
<td></td>
</tr>
<tr>
<td>Diane B. Hess</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TC comments indicate more discussion is required.

There are correlation issues with other Hazmat standards. A Task Group needs to be formed by the TC to discuss.

Thomas M. Hosea

Beth C. Lancaster

There are correlation issues with other Hazmat standards. A Task Group needs to be formed by the TC to discuss.

Douglas Menard

Jeffrey O. Stull

There are correlation issues that still need to be examined in more detail before an amendment is proposed.

William A. Van Lent

TIA introduces requirements that need to be addressed by the TC

Richard Weise

Need a design requirement for closure, back to TC

James B. Area

Continued issue with penetration test

Abstain

0

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 30

Not Returned: 5

Roger L. Barker, Jeff Legendre, Bruce H. Varner, W. Jason Traynor, Edmund Farley

<table>
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<th>Vote Selection</th>
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<tr>
<td>Jack E. Reall</td>
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<tr>
<td>Joseph Arrington</td>
<td>A</td>
<td>The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Patricia A. Freeman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harry P. Winer</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

| Disagree       | 20    |          |
| Jason L. Allen |       | Additional discussion is needed by the TC I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA. |
| Karen E. Lehtonen |       |          |
| Amanda H. Newsom | Voting in support of the TC | The intent of this TIA needs further discussion by the TC. |
| William E. Haskell, III |       |          |
more work is needed by the TC to resolve this issue

This is not of an emergency nature as it does not solve the problem.

Additional work is needed by the TC.

As indicated by the numerous comments on the failed TC ballot, the emergency nature has not been demonstrated. The TC should revisit the TIA to ensure that the language accomplishes the intended resolution and determine the most appropriate path forward (either through a resubmitted TIA or as consideration for the next revision cycle).

Resolution between this and other standards requires additional discussion at the technical committee.

Discussion by TC or TG of TC is needed

Content of TIA requires further discussion and is not emergency nature.

TIA is not of an emergency nature.

TC Needs more work on this TIA.

Addition work is needed by the Technical Committee to gain resolution on this issue.

This is not of an emergency nature as there is still work to be done.

Should be sent back to TC to resolve.

Does not support the requirements for emergency nature and should have more TC discussion.

Assert a design requirement for closures, back to TC

Abstain 1

Not of an Emergency Nature

This is not of an emergency nature as there is still work to be done.

Should be sent back to TC to resolve.

Does not support the requirements for emergency nature and should have more TC discussion.

Assert a design requirement for closures, back to TC

Abstain 1
MEMORANDUM

TO: Technical Committee on Hazardous Materials Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: June 27, 2019

SUBJECT: NFPA 1994 Proposed TIA No. 1432 FINAL TC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

31 Eligible to Vote
6 Not Returned (Buck, Dulisse, D. Green, Kennedy, Kirsteins, Thompson)

<table>
<thead>
<tr>
<th>Technical Merit:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Abstentions</td>
<td>1 Abstentions (Hirschey)</td>
</tr>
<tr>
<td>11 Agree</td>
<td>11 Agree</td>
</tr>
<tr>
<td>14 Disagree (Allen, Baxter, Fithian,</td>
<td></td>
</tr>
</tbody>
</table>
Harkness, Haskell, III, Horowitz,  |
Lancaster, Lehtonen, Lovasic,  |
Mann, Newsom, Nystrom, Stull,  |
Wiseman)         | 13 Disagree (Allen, Baxter, Fithian,  |
Harkness, Haskell, III, Horowitz,  |
Lancaster, Lehtonen, Lovasic,  |
Mann, Newsom, Nystrom, Stull,  |
Wiseman)         |

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required. [31 eligible ÷ 2 = 15.5 = (16)]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 19 for Technical Merit and 18 for Emergency Nature.  
Technica; Merit: (31 eligible to vote - 6 not returned - 0 abstentions = 25 × 0.75 = 18.75)  
Emergency Nature: (31 eligible to vote - 6 not returned - 1 abstentions = 24 × 0.75 = 18)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is Tuesday, July 2, 2019.
I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1432 to Add new paragraphs in Chapter 7 and Revise sections in Chapter 8.

Eligible to Vote: 31
Not Returned : 6
Donald B. Thompson, Ted S. Buck, Dustin Green, Jeffrey Kennedy, Paul Dulisse, and Andra Kirsteins

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
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<tr>
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<td></td>
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<tr>
<td>Russell R. Greene</td>
<td>Agree</td>
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<tr>
<td>Kyle Kerbow</td>
<td>Agree</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Brian J. Clifford</td>
<td>Concur</td>
<td></td>
</tr>
<tr>
<td>Michael Ziskin</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Richard P. Daly, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert E. Shelton</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>James P. Zeigler</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Nicholas Del Re</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert West</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Ryan C. Hirschey</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>John E. Wisner, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>
William A. Fithian  
This was not an omission for Class 1, but warrants additional discussion by the Technical Committee (TC).

Amanda H. Newsom  
Insufficient testing methods to accommodate this TIA. Alternative considerations should be provided to address the concern.

Jason L. Allen  
Additional discussion is needed by the TC

Jeffrey O. Stull  
Viral penetration resistance testing is not needed for Class 1 materials and seams. The application of a viral penetration test to closure assemblies is problematic because the test cell has difficulty accommodating this type of sample. This issue may best be addressed by adding a design requirement for closures to always have a cover flap.

Karen E. Lehtonen  
While this TIA points out technical issues with the standard as written the TIA does not necessarily solve them. The TC should address and submit a TIA or revise the standard accordingly.

William E. Haskell, III  
does not support requirements for Technical Merit.

Beth C. Lancaster  
TIA has multiple issues. A Task Group needs to be formed to discuss.

Allen Ira Harkness  
There is an issue, but cannot agree with TIA as writer. More technical committee discussion required on the issue.

Ulf Nystrom  
The suggested solutions to the issues raised are not necessarily the optimal ones. Also, more importantly, these issues need further discussion by the committee because they are not specific to NFPA 1994 but affect all hazmat standards.

Jason Horowitz  
This should be rejected as it requires more detailed TC discussions to come to agreement. The group discussed 1) adding a design requirement for a flap and 2) potentially adding viral testing for Class 1 straight seams and garment fabric.
Christina M. Baxter  The committee did consider the implementation of viral penetration test for Class 1; however, as with NFPA 1991, did not consider it necessary and potentially redundant within the standard because of the other more rigorous barrier tests in the standard. The application of viral penetration resistance testing to closures is problematic given the current state of test cell technology to accommodate closure assembly samples.

Susan L. Lovasic  This proposal has many parts. While it raises points for further discussion within the TC, I cannot support voting to agree with this TIA as currently drafted.

Philip C. Mann  Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.

Darrell B Wiseman  Disagree

Abstain  0

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 31
Not Returned : 6
Donald B. Thompson,Ted S. Buck,Dustin Green,Jeffrey Kennedy,Paul Dulisse,Andra Kirsteins

Vote Selection  Votes  Comments
Agree  11
Russell R. Greene  A
Kyle Kerbow  A. The standard contains an error or an omission that was overlooked during the regular revision process.
Allen Ira Harkness  A
Brian J. Clifford  Co cur
Michael Ziskin  A. The standard contains an error or an omission that was
overlooked during the regular revision process.
Richard P. Daly, Jr.  A
Robert E. Shelton  C
James P. Zeigler  A
Nicholas Del Re  E
Robert West  agree
John E. Wisner, Jr.  A
Disagree  13
William A. Fithian  Additional discussion by the TC is required.
Amanda H. Newsom  Insufficient testing methods to accommodate this TIA.
Alternative considerations should be provided to address the
concern.
Jason L. Allen  Additional discussion is needed
Jeffrey O. Stull  The exclusion of viral penetration resistance test results for
Class 1 was on purpose and thus is not an omission. The
inclusion of requirements to address closure performance
may only be addressed by a different TIA asserting a design
requirement.
Karen E. Lehtonen  I disagree with the emergency nature reason submitted. The
TC should take the time to revise the standards properly to
address the issues either in the normal revision process or
via another TIA.
William E. Haskell, III  Does not support requirements for Emergency Nature and
position of the TC.
Beth C. Lancaster  TIA is not of an emergency nature.
Ulf Nystrom  This issue needs further discussion by the committee.
Jason Horowitz  Not an emergency.
Christina M. Baxter  The amendment does not address an omission and should
not be considered to be of an emergency nature.
Susan L. Lovasic: This proposal has many parts. While it raises points for further discussion within the TC, I cannot support voting to agree with this TIA as currently drafted.

Philip C. Mann: Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.

Darrell B Wiseman: Disagree

Abstain: 1

Ryan C. Hirschey: Agree in principle, but not sure the proposal is an emergency; and instead, should be addressed during the standard revision process.
Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents
TIA Log No.: 1433
Reference: Various in Chapters 6, 7 and 8
Comment Closing Date: June 20, 2019
Submitter: James P. Zeigler, J.P. Zeigler, LLC
www.nfpa.org/1994

1. Add new paragraph 6.x to read as follows:

   6.2.8 Where garments use closure assemblies with protective covers, the material of these protective cover(s) shall meet all applicable performance criteria for garment materials in Chapter 7. The cover(s) shall allow access to the closure(s) for donning, doffing, and inspection.

2. Add new paragraph 7.1.1.8 to read as follows:

   7.1.1.8 Where garment closures are covered by protective cover(s), there shall be no evidence of water exposure on the exterior surface of the closure.

3. Add new paragraph 7.1.2.10 to read as follows:

   7.1.2.10 Where Class 1 garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 1 garment closure assemblies shall be tested for penetration resistance as specified in Section 8.33, Chemical Penetration Resistance Test, and shall exhibit no penetration for at least 1 hour for each of the specified chemicals.

4. Add new paragraph 7.2.1.2.3 and renumber existing 7.2.1.2.3 accordingly to read as follows:

   7.2.1.2.3 Where Class 2 garment closures are covered by protective cover(s), there shall be no evidence of water exposure on the exterior surface of the closure.

   7.2.1.2.34 Where protective flaps cover the closure, the protective flaps shall remain closed for the duration of the overall garment function test.

5. Add new paragraph 7.2.2.9, renumber existing 7.2.2.8 and 7.2.2.9 as 7.2.2.10 and 7.2.2.11 respectively (see note), and Annex A, including cross references to read as follows:

   7.2.2.9 Where Class 2 garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 2 garment closure assemblies shall be tested for penetration resistance as specified in Section 8.33, Chemical Penetration Resistance Test, and shall exhibit no penetration for at least 1 hour for each of the specified chemicals.

(Note about paragraph numbering: a new 7.2.2.8 is being submitted by another TIA No. 1432)

7.2.2.810 Class 2 Garment Visor Requirements.

   7.2.2.810.1 Class 2 garment visor materials and seams shall be tested for permeation resistance …

   7.2.2.810.2 Class 2 garment visor materials shall be tested for high mass impact resistance …

   7.2.2.8108.3 Class 2 garment visor material seams shall be tested for seam strength …

   7.2.2.810.4 Class 2 garment visor materials shall be tested for resistance to liquid or bloodborne …

7.2.2.911 Class 2 Elastomeric Interface Material Requirements.

   7.2.2.911.1* Elastomeric interface materials shall have an elongation at rupture …

   7.2.2.911.2 Where the Class 2 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for permeation resistance …
7.2.2.911.3 Where the Class 2 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cut resistance …
7.2.2.911.4 Where the Class 2 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for puncture resistance …
7.2.2.911.5 Where the Class 2 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for ultimate tensile strength …
7.2.2.911.6 Where the Class 2 garment includes elastomeric interface materials, each elastomeric interface gasket material shall be tested for cold weather performance …

A.7.2.2.911.1 The requirement for 125 percent elongation is for the purpose of defining an interface material as elastomeric. If the material has less than a 125 percent elongation at rupture, the criteria for 7.2.2.911 do not apply. Instead, pertinent criteria in 7.2.2 are applied.

6. Add new paragraph 7.3.1.2.5 and renumber existing 7.3.1.2.3 as 7.3.1.2.6 (see note) to read as follows:

7.3.1.2.5 Where Class 2R garment closures are covered by protective cover(s), there shall be no evidence of water exposure on the exterior surface of the closure.

(Note about paragraph numbering: new paragraphs 7.3.1.2.3 and 7.2.1.2.4 are being submitted by another TIA No. 1434)

7.3.1.2.6 Where protective flaps cover the closure, the protective flaps shall remain closed for the duration of the overall garment function test.

7. Add new paragraph 7.3.2.9 and renumber existing 7.3.2.8 and 7.3.2.9 as 7.3.2.10 and 7.3.2.11 respectively (see note), and Annex A, including cross references to read as follows:

7.3.2.9 Where Class 2R garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 2R garment closure assemblies shall be tested for penetration resistance as specified in Section 8.33, Chemical Penetration Resistance Test, and shall exhibit no penetration for at least 1 hour for each of the specified chemicals.

(Note about paragraph numbering: a new paragraph 7.3.2.8 is being submitted by another TIA No. 1432)

7.3.2.810 Class 2R Garment Visor Requirements.

7.3.2.810.1 Class 2R garment visor materials and seams shall be tested for permeation resistance …
7.3.2.810.2 Class 2R garment visor materials shall be tested for high mass impact resistance …
7.3.2.810.3 Class 2R garment visor material seams shall be tested for seam strength …
7.3.2.810.3.1 Seam breaking strength shall be considered acceptable where the material strength is less than the required seam strength specified in 7.3.2.810.3 provided the material fails without failure of the seam below the applicable forces specified in 7.3.2.810.3.
7.3.2.810.4 Class 2R garment visor materials shall be tested for resistance to liquid or bloodborne …

7.3.2.911 Class 2R Elastomeric Interface Material Requirements.

7.3.2.911.1* Elastomeric interface materials shall have an elongation at rupture …
7.3.2.911.2 Where the Class 2R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for permeation resistance …
7.3.2.911.3 Where the Class 2R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cut resistance …
7.3.2.911.4 Where the Class 2R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for puncture resistance …
7.3.2.911.5 Where the Class 2R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for ultimate tensile strength …
7.3.2.911.6 Where the Class 2R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cold weather performance …

A.7.3.2.911.1 The requirement for 125 percent elongation is for the purpose of defining an interface material as elastomeric. If the material has less than a 125 percent elongation at rupture, the criteria for 7.3.2.911 do not apply. Instead, pertinent criteria in 7.3.2 are applied.

8. Add new paragraph 7.4.1.2.3 and renumber current 7.4.1.2.3 accordingly to read as follows:
7.4.1.2.3 Where Class 3 garment closures are covered by protective cover(s), there shall be no evidence of water exposure on the exterior surface of the closure.
7.4.1.2.34 Where protective flaps cover the closure, the protective flaps shall remain closed for the duration of the overall garment function test.

9. Add new paragraph 7.4.2.11 and renumber existing 7.4.2.10 and 7.4.2.11 as 7.4.2.12 and 7.4.2.13 respectively (see note), and Annex A, including cross references to read as follows:
7.4.2.11 Where Class 3 garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 3 garment closure assemblies shall be tested for penetration resistance as specified in Section 8.33, Chemical Penetration Resistance Test, and shall exhibit no penetration for at least 1 hour for each of the specified chemicals.

(Note about paragraph numbering: a new paragraph 7.4.2.10 is being submitted by another TIA No. 1432)
7.4.2.1012 Class 3 Garment Visor Requirements.
7.4.2.1012.1 Elastomeric interface materials shall have an elongation at rupture …
7.4.2.1012.2 Class 3 visor materials and seams shall be tested for permeation resistance …
7.4.2.1012.3 Class 3 garment visor materials shall be tested for high-mass impact resistance …
7.4.2.1012.4 Class 3 garment visor material seams shall be tested for seam strength …
7.4.2.1012.5 Class 3 garment visor materials shall be tested for resistance to liquid or bloodborne …
7.4.2.1013 Class 3 Elastomeric Interface Material Requirements.
7.4.2.1013.1* Elastomeric interface materials shall have an elongation at rupture …
7.4.2.1013.2 Where the Class 3 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for permeation resistance …
7.4.2.1013.3 Where the Class 3 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cut resistance …
7.4.2.1013.4 Where the Class 3 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for puncture resistance …
7.4.2.1013.5 Where the Class 3 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for ultimate tensile strength …
7.4.2.1013.6 Where the Class 3 garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cold weather performance …

A.7.4.2.1013.1 The requirement for 125 percent elongation is for the purpose of defining an interface material as elastomeric. If the material has less than a 125 percent elongation at rupture, the criteria for 7.4.2.1013.1 do not apply. Instead, pertinent criteria in 7.4.2 are applied.

10. Add new paragraph 7.5.1.2.3 and renumber subsequent paragraph accordingly to read as follows:
7.5.1.2.3 Where Class 3R garment closures are covered by protective cover(s), there shall be no evidence of water exposure on the exterior surface of the closure.

11. Add new paragraph 7.5.2.11 and renumber existing 7.5.2.10 and 7.5.2.11 as 7.5.2.12 and 7.5.2.13 respectively (see note), and Annex A, including cross references to read as follows:
7.5.2.11 Where Class 3R garment closures are not fully covered by a protective flap that is constructed of the same material as the garment, Class 3R garment closure assemblies shall be tested for penetration resistance as specified in Section 8.33, Chemical Penetration Resistance Test, and shall exhibit no penetration for at least 1 hour for each of the specified chemicals.

(Note about paragraph numbering: a new paragraph 7.5.2.10 is being submitted by another TIA No. 1432)
7.5.2.10 Class 3R Garment Visor Requirements.
7.5.2.10.1 Class 3R visor materials and seams shall be tested for permeation resistance …
7.5.2.10.2 Class 3R garment visor materials shall be tested for high-mass impact resistance …
7.5.2.10.3 Class 3R garment visor material seams shall be tested for seam strength …
7.5.2.10.4 Class 3R garment visor materials shall be tested for resistance to liquid or bloodborne …
7.5.2.11 Class 3R Elastomeric Interface Material Requirements.
7.5.2.11.1* Elastomeric interface materials shall have an elongation at rupture …
7.5.2.11.2 Where the Class 3R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for permeation resistance …
7.5.2.11.3 Where the Class 3R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cut resistance …
7.5.2.11.4 Where the Class 3R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for puncture resistance …
7.5.2.11.5 Where the Class 3R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for ultimate tensile strength …
7.5.2.11.6 Where the Class 3R garment includes elastomeric interface materials, each elastomeric interface material shall be tested for cold weather performance …

A.7.5.2.11.1 The requirement for 125 percent elongation is for the purpose of defining an interface material as elastomeric. If the material has less than a 125 percent elongation at rupture, the criteria for 7.5.2.11.3 do not apply. Instead, pertinent criteria in 7.5.2 are applied.

12. Add new paragraph 8.4.7.3 to read as follows:
8.4.7.3 Where garment closures are covered by protective cover(s), evidence of liquid exposure on the external surface of the closure shall constitute failure.

13. Revise 8.33.1.1 to read as follows:
8.33.1.1 This method shall apply to the CBRN barrier layer and the to CBRN barrier layer’s seams, and to closures not covered by a protective cover used in ensembles and ensemble elements for CBRN terrorism agent protection.

14. Revise 8.33.1.6 to read as follows:
8.33.1.6 Specific requirements for testing the CBRN barrier layer’s seams of garments, hoods, socks, visors, and gloves and to closures not covered by a protective cover shall be as specified in 8.33.11.

15. Revise section 8.33.11 to read as follows:
8.33.11 Specific Requirements for Testing the CBRN Barrier Layer’s Seams of Garments, Hoods, Socks, Visors, and Gloves, and Closures Not Covered by a Protective Cover.

8.33.11.1 Samples for conditioning shall be 600 mm (23 1/2 in.) lengths of prepared seam or prepared closure assembly or cut from ensembles.

8.33.11.2 Seam specimens shall be prepared from seam samples that have a minimum of 75 mm (3 in.) of material on each side of the seam or closure center.

8.33.11.3 Penetration test specimens shall be cut such that the exact seam or closure center divides the specimen in half.

8.33.11.4 Seam and closure specimens shall be prepared representing each type of seam or closure found in the garment, or shall be taken from each type of seam or closure found in the garment, including as a minimum the garment-to-garment material seams and the garment-to-visor material seams.

Substantiation: TIA addresses a significant omission during the revision of NFPA 1994, 2018 Edition. Testing of closure assembly barrier was overlooked in this revision to NFPA 1994. Barrier testing of closures has been an integral part of NFPA 1991 and NFPA 1992 since their inception. Closures should be subjected to testing similar to garment seams and garment materials in terms of strength and barrier. While closure strength is addressed in the revision, but barrier requirements were overlooked. In addition, viral barrier testing of Class 1 seams was omitted, while requirements were provide for Class 2, 2R, 3, 3R, 4 and 4R seams.

NFPA 1991 and NFPA 1992 provide precedence to allow a protective cover over the closure assembly in lieu of testing of the closure. However, the protective performance of the closure protective cover needs to be defined.

Emergency Nature: The standard contains an error or an omission that was overlooked during the regular revision process.

The closure is a critical and vulnerable component of the protective ensemble. The closures are often located on the front of the garment torso where they are subjected to direct exposure from splash or pressure contact exposed victims. This is a reasonable and critical vulnerability of the liquid chemical and biological protective garment. Lack of requirements on the barrier performance of the closure places the responders at risk. The lack of this requirement leaves a known and serious deficiency in the barrier performance of the NFPA 1994 products.
MEMORANDUM

TO: Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: June 27, 2019

SUBJECT: NFPA 1994 Proposed TIA No. 1433 FINAL CC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA has not achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

30 Eligible to Vote
5 Not Returned (Barker, Farley, Legendre, Traynor, Varner)

<table>
<thead>
<tr>
<th>Correlation Issues:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Abstentions</td>
<td>1 Abstentions (Area)</td>
</tr>
<tr>
<td>9 Agree (I w/comment: Morris)</td>
<td>6 Agree</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[30 \text{ eligible} \div 2 = 15 + 1 = (16)\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is **19 for Correlation Issues and 18 for Emergency Nature**.

Correlation Issues: (30 eligible to vote – 5 not returned – 0 abstentions = 25 × 0.75 = 18.75)

Emergency Nature: (30 eligible to vote – 5 not returned – 1 abstentions = 24 x 0.75 = 18)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5
<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Agree</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td></td>
<td>No correlating issues.</td>
</tr>
<tr>
<td>Jack E. Reall</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>David V. Haston</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Cristine Z. Fargo</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Patricia A. Freeman</td>
<td></td>
<td>AGREE</td>
</tr>
<tr>
<td>Harry P. Winer</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Michael F. McKenna</td>
<td></td>
<td>Agree there are no correlation issues but needs to be resolved by TC</td>
</tr>
<tr>
<td>John H. Morris</td>
<td></td>
<td>Agreement by the TC</td>
</tr>
<tr>
<td>Steven H. Weinstein</td>
<td></td>
<td>Agree.</td>
</tr>
<tr>
<td>Disagree</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Jason L. Allen</td>
<td></td>
<td>Additional work is needed at the TC level to create proper test methods and address correlation issues, therefore this should be addressed by the committee in the revision process not by this TIA.</td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td></td>
<td>Voting in support of the TC Additional discussion appears to be needed by the TC before moving forward.</td>
</tr>
<tr>
<td>Joseph Arrington</td>
<td></td>
<td>More work is needed by the TC to resolve this issue</td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td></td>
<td>Other technical issues need to be addressed before this TIA goes forward. Additional language is necessary to address technical issues with the test method. Correlation between this and other standards requires resolution at the technical committee.</td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td></td>
<td>This TIA requires further work by the TC</td>
</tr>
</tbody>
</table>
I do not think the technical issues brought up are not adequately addressed.

Further TC discussion is needed.

There are correlation issues that affect other hazmat standards.

TC Needs more work on this TIA.

There are correlation issues that still need to be examined in more detail before an amendment is proposed.

The proposed TIA introduces requirements that need to be addressed by the TC.

Design requirement for closure, back to TC

I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA.

Voting in support of the TC

<table>
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<tr>
<th>Vote Selection</th>
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<tr>
<td>Agree with the intent of the TIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The standard contains an error or an omission that was overlooked during the regular revision process.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td></td>
<td></td>
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<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Additional discussion is needed by the TC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voting in support of the TC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Does not meet the requirement for emergency nature

David T. Bernzweig
More work is needed by the TC to resolve this issue

Robert D. Tutterow, Jr.
This TIA is not an emergency as more technical work is needed by the technical committee.

David V. Haston
Additional work is needed by the TC.

David G. Matthews

As indicated by the numerous comments on the failed TC ballot, the TC should revisit the TIA to ensure that the language accomplishes the intended resolution and determine the most appropriate path forward (either through a resubmitted TIA or as consideration for the next revision cycle).

Cristine Z. Fargo

Diane B. Hess
TIA is not of an Emergency nature

Thomas M. Hosea
Not an emergency nature.

Beth C. Lancaster
TIA is not of an emergency nature.

Douglas Menard
TC Needs more work on this TIA.

Jeffrey O. Stull
Committee to gain resolution on this issue.

William A. Van Lent
Not of an Emergency Nature

John H. Morris
Needs to be resolved by TC

Does not support the requirements for emergency nature and should have more TC discussion.

Steven H. Weinstein

Richard Weise
Further discussion by TC

Abstain

1

James B. Area

A
MEMORANDUM

TO: Technical Committee on Hazardous Materials Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: June 27, 2019

SUBJECT: NFPA 1994 Proposed TIA No. 1433 FINAL TC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA has not achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

31 Eligible to Vote
6 Not Returned (Thompson, Buck, Green, D., Kennedy, Dulisse, Kirsteins)

<table>
<thead>
<tr>
<th>Technical Merit:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Abstentions (Greene, R.)</td>
<td>1 Abstentions (Green, R.)</td>
</tr>
<tr>
<td>10 Agree</td>
<td>10 Agree</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

1 In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required. \[31 \text{ eligible} \div 2 = 15.5 = (16)\]

2 The number of affirmative votes needed to satisfy the ¾ requirement is 18.

(31 eligible to vote - 6 not returned - 1 abstentions = 24 \times 0.75 = 18)

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is Tuesday, July 2, 2019.
I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1433 to Add new paragraphs and Revise various sections in Chapters 6, 7 and 8.

Eligible to Vote: 31
Not Returned: 6

Donald B. Thompson, Ted S. Buck, Dustin Green, Jeffrey Kennedy, Paul Dulisse, Andra Kirsteins

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Kyle Kerbow</td>
<td></td>
<td>The standard contains an error or omission that was overlooked during the regular revision process</td>
</tr>
<tr>
<td>Brian J. Clifford</td>
<td></td>
<td>I concur</td>
</tr>
<tr>
<td>Michael Ziskin</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Richard P. Daly, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert E. Shelton</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>James P. Zeigler</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Nicholas Del Re</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert West</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Ryan C. Hirschey</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>John E. Wisner, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>
William A. Fithian

Additional discussion by the Technical Committee (TC) is required to address the concerns noted in the proposed TIA. There are test method issues that need to be resolved before considering any chemical testing of closures or closure assemblies.

Amanda H. Newsom

Proper validation of the testing changes being proposed has not occurred.

Jason L. Allen

Additional discussion is needed.

Jeffrey O. Stull

The application of a liquid penetration test involving a single chemical (H2SO4) to closure assemblies is problematic because the test cell has difficulty accommodating this type of sample. This issue may best be addressed by adding a design requirement for closures to always have a cover flap. There could be significant interpretation issues if the inspection requirement is added for looking for liquids underneath the closure flap.

Karen E. Lehtonen

While this TIA points out technical issues with the standard as written the TIA does not necessarily solve them. The TC should address and submit a TIA or revise the standard accordingly.

William E. Haskell, III

No Technical Merit

Beth C. Lancaster

The shower test has been validated through external testing in which multiple TC members participated.

Allen Ira Harkness

Cannot agree with TIA as written. More technical committee discussion needed.
Ulf Nystrom
This issue affects other hazmat standards as well and further discussion by the committee is needed to achieve consensus on an overall approach and solutions for all the affected hazmat standards.

Jason Horowitz
This TIA should be rejected - Water on the exterior of the zipper in the shower test does not dictate failure of the garment. Failure is indicated by liquid on the reference garment and this is already a difficult test to run effectively and to pass. There is increased risk of a false negative due to the doffing of the garment. Furthermore, if a liquid-tight zipper was used, it absolutely should be allowed to have water on the outside of it. Water on the inside of the zipper would be an acceptable failure.

Christina M. Baxter
Chemical penetration resistance testing was only recently added to NFPA 1994 through TIA 18-8 to address a problem with testing of sulfuric acid for permeation resistance. In addition, the submitter is inserting an entirely new requirement for the inspection of closures following liquid integrity testing that is a considerable change to the way in which the test results are evaluated and is inconsistent with the application within other standards.
Susan L. Lovasic
This TIA has many parts. My "disagree" vote is mostly focused on the new sections 7.1.1.8 and 7.2.1.2.3 which include this requirement - "Where garment closures are covered by protective cover(s), there shall be no evidence of water exposure on the exterior surface of the closure." Evidence of water under the flap (cover) but without any evidence of water inside the suit should not be a reason for failure in this test.

Philip C. Mann
Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.

Darrell B Wiseman
Disagree

Abstain

Russell R. Greene
Do not fully understand the impact.

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 31
Not Returned : 6
Donald B.
Thompson,Ted S.
Buck,Dustin
Green,Jeffrey
Kennedy,Paul
Dulisss,Andra Kirsteins

Vote Selection     Votes     Comments

Agree              10
Kyle Kerbow: he standard contains an error or omission that was overlooked during the regular revision process.

Allen Ira Harkness: A

Brian J. Clifford: I concur

Michael Ziskin: A. The standard contains an error or an omission that was overlooked during the regular revision process.

Richard P. Daly, Jr.: A

Robert E. Shelton: C

James P. Zeigler: A

Nicholas Del Re: E

Robert West: agree

John E. Wisner, Jr.: A

**Disagree**

William A. Fithian: Additional discussion by the TC is required.

Amanda H. Newsom: Proper validation of the testing changes being proposed has not occurred.

Jason L. Allen: Additional discussion is needed.

Jeffrey O. Stull: Additional work is needed by the technical committee for properly addressing these specific issues.

Karen E. Lehtonen: I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA.


Beth C. Lancaster: TIA is not of an emergency nature.

Ulf Nystrom: This issue affects other hazmat standards as well and further discussion by the committee is needed.
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jason Horowitz</td>
<td></td>
<td>Not an emergency.</td>
</tr>
<tr>
<td>Christina M. Baxter</td>
<td></td>
<td>This should be further discussed as a committee as it includes a new proposed requirement and changes to the way in which a test method incorporated within 1991, 1992, and 1994 is evaluated.</td>
</tr>
<tr>
<td>Susan L. Lovasic</td>
<td></td>
<td>Not an emergency nature. Not a needed change.</td>
</tr>
<tr>
<td>Philip C. Mann</td>
<td></td>
<td>Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.</td>
</tr>
<tr>
<td>Ryan C. Hirschey</td>
<td></td>
<td>As this is new language for the standard, it should be addressed during the standard revision process.</td>
</tr>
<tr>
<td>Darrell B Wiseman</td>
<td>Abstain</td>
<td>1</td>
</tr>
<tr>
<td>Russell R. Greene</td>
<td></td>
<td>Do not fully understand the impact.</td>
</tr>
</tbody>
</table>
Standard on Protective Ensembles for First Responders to Hazardous Materials Emergencies and CBRN Terrorism Incidents
TIA Log No.: 1434
Reference: 7.2.1.2.5(new), 7.2.1.2.6(new), 7.3.1.2.3(new), 7.3.1.2.4(new), 7.4.1.2.5(new), 7.4.1.2.6(new), 7.5.1.2.5(new), and 7.5.1.2.6(new)
Comment Closing Date: June 20, 2019
Submitter: James P. Zeigler, J.P. Zeigler, LLC
www.nfpa.org/1994

1. Add new paragraph 7.2.1.2.5 to read as follows:
   7.2.1.2.5 Where outer gloves are designed to be worn in conjunction with gloves attached to the ensemble, the outer gloves shall not collect liquid.

2. Add new paragraph 7.2.1.2.6 to read as follows:
   7.2.1.2.6 Where outer boots are designed to be worn in conjunction with socks, the outer boots shall not collect liquid.

3. Add new paragraph 7.3.1.2.3 to read as follows:
   7.3.1.2.3 Where outer gloves are designed to be worn in conjunction with gloves attached to the ensemble, the outer gloves shall not collect liquid.

4. Add new paragraph 7.3.1.2.4 to read as follows:
   7.3.1.2.4 Where outer boots are designed to be worn in conjunction with socks, the outer boots shall not collect liquid.

5. Add new paragraph 7.4.1.2.5 to read as follows:
   7.4.1.2.5 Where outer gloves are designed to be worn in conjunction with gloves attached to the ensemble, the outer gloves shall not collect liquid.

6. Add new paragraph 7.4.1.2.6 to read as follows:
   7.4.1.2.6 Where outer boots are designed to be worn in conjunction with socks, the outer boots shall not collect liquid.

7. Add new paragraph 7.5.1.2.5 to read as follows:
   7.5.1.2.5 Where outer gloves are designed to be worn in conjunction with gloves attached to the ensemble, the outer gloves shall not collect liquid.

8. Add new paragraph 7.5.1.2.6 to read as follows:
   7.5.1.2.6 Where outer boots are designed to be worn in conjunction with socks, the outer boots shall not collect liquid.

Substantiation: This TIA addresses a significant omission during the revision of NFPA 1994, 2018 Edition. NFPA 1992 (2018), as well as NFPA 1991 (2016) and NFPA 1994 (2018), allows use of multiple gloves to meet performance requirements for hand and foot protection. This requirement that liquid not collect between these layers is found in NFPA 1991 (7.1), for Class 1 of NFPA 1994 (2018, 7.1.1.3.1 & 7.1.1.3.2) and embedded in the Liquidtight Integrity test for NFPA 1992 (2018, 8.2.7.2 for which a TIA has been submitted). There are no such requirements in Chapter 7 of NFPA 1994. Under
the Liquidtight Integrity test method, collection of water between the layers is grounds for failure (8.4.7.1 & 8.4.7.2), but this lacks a corresponding performance requirements in Chapter 7 for Classes 2, 2R, 3 and 3R. This requirement if not applicable to Class 4 and 4R which are not subjected to the liquidtight test.

**Emergency Nature:** The standard contains an error or an omission that was overlooked during the regular revision process.

Multiple glove and footwear systems may involve materials with significantly different barrier performance and durability. While this standard conducts barrier testing at partial surface coverage, if liquid collects in the gloves or boots, may results in significantly higher exposure that the suit material is evaluated for. Hot environment found in the gloves and footwear accelerates permeation further adding the hazard of immersion of the glove or hand in hazardous liquids.
MEMORANDUM

TO: Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: June 27, 2019

SUBJECT: NFPA 1994 Proposed TIA No. 1434 FINAL CC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(b) in the NFPA Regs, the final results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

### Correlation Issues:
- **1** Abstentions (Morris)
- **8** Agree
- **16** Disagree (Allen, Area, Arrington, Bernzweig, Gleason, Hess, Hosea, Lancaster, Lehtonen, Matthews, Menard, Newsom, Stull, Tutterow, Jr., Van Lent, Weise)

### Emergency Nature:
- **1** Abstentions (Area)
- **4** Agree
- **20** Disagree (Allen, Arrington, Bernzweig, Fargo, Haskell, III, Haston, Hess, Hosea, Lancaster, Lehtonen, Matthews, McKenna, Menard, Morris, Newsom, Stull, Tutterow, Jr., Van Lent, Weise, Weinstein)

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

1. In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.
   \[30 \text{ eligible} \div 2 = 15 + 1 = 16\]

2. The number of affirmative votes needed to satisfy the ¾ requirement is 18.
   
   \[(30 \text{ eligible to vote} – 5 \text{ not returned} – 1 \text{ abstentions} = 24 \times 0.75 = 18)\]

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.
Appeal Closing Date for this TIA is Tuesday, July 2, 2019.
## NFPA 1994 Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment

### Proposed Tentative Interim Amendment No 1434 - Final Ballot Results

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agree</strong></td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>Agree</td>
<td>No correlating issues.</td>
</tr>
<tr>
<td>Jack E. Reall</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>David V. Haston</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Cristine Z. Fargo</td>
<td>I agree</td>
<td></td>
</tr>
<tr>
<td>Patricia A. Freeman</td>
<td>AGREE</td>
<td></td>
</tr>
<tr>
<td>Harry P. Winer</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Michael F. McKenna</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Steven H. Weinstein</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td><strong>Disagree</strong></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Jason L. Allen</td>
<td></td>
<td>Additional language and discussion is needed by the TC to further clarify.</td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td></td>
<td>The proposed TIA could cause some correlation issues and should be addressed by the technical committee in the normal revision process.</td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td></td>
<td>Voting in support of the TC</td>
</tr>
<tr>
<td>Joseph Arrington</td>
<td></td>
<td>Additional discussion appears to be needed by the TC before moving forward.</td>
</tr>
<tr>
<td>David T. Bernzweig</td>
<td></td>
<td>More work is needed by the TC to resolve this issue</td>
</tr>
<tr>
<td>Robert D. Tutterow, Jr.</td>
<td></td>
<td>This TIA does not address the issue.</td>
</tr>
<tr>
<td>Patricia A. Gleason</td>
<td></td>
<td>Additional language is necessary to address technical issues with the test method. Correlation between this and other standards requires resolution at the technical committee.</td>
</tr>
<tr>
<td>David G. Matthews</td>
<td></td>
<td>This TIA requires further work by the TC</td>
</tr>
<tr>
<td>Diane B. Hess</td>
<td></td>
<td>The TIA brings up technical issues, yet needs to address them further</td>
</tr>
<tr>
<td>Thomas M. Hosea</td>
<td></td>
<td>TC needs further discussion on this subject.</td>
</tr>
<tr>
<td>Beth C. Lancaster</td>
<td></td>
<td>There are correlation issues.</td>
</tr>
<tr>
<td>Douglas Menard</td>
<td></td>
<td>TC Needs more work on this TIA.</td>
</tr>
</tbody>
</table>
Jeffrey O. Stull

There are correlation issues that still need to be examined in more detail before an amendment is proposed.

William A. Van Lent

The proposed TIA introduces requirements that need to be addressed by the TC and correlated with 1991.

Richard Weise

Additional information and clarification needed for "Collect Liquid" back to TC

James B. Area

Additional consideration should be taken before applying this standard to outer glove systems

Abstain

1

John H. Morris

Needs to be resolved by TC

I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 30
Not Returned: 5
Roger L. Barker, Jeff Legendre, Bruce H. Varner, W. Jason Traynor, Edmund Farley

Vote Selection   Votes   Comments

Agree

Jack E. Reall                   Agree
Patricia A. Gleason             Agree A

The standard contains an error or an omission that was overlooked during the regular revision process.

Patricia A. Freeman
Harry P. Winer                  A

Disagree                         20
Jason L. Allen                   Additional discussion is needed by the TC

I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA.

Karen E. Lehtonen
Amanda H. Newsom                Voting in support of the TC

William E. Haskell, III
Joseph Arrington                The intent of this TIA needs further discussion by the TC.

Does not necessitate an emergency nature

David T. Bernzweig              More work is needed by the TC to resolve this issue
This is not of an emergency nature and needs more discussion by the TC.

David V. Haston  
Additional work is needed by the TC

David G. Matthews  
A

As indicated by the numerous comments on the failed TC ballot, the emergency nature has not been demonstrated. The TC should revisit the TIA to ensure that the language accomplishes the intended resolution and determine the most appropriate path forward (either through a resubmitted TIA or as consideration for the next revision cycle).

Cristine Z. Fargo

Diane B. Hess  
the TC needs to address the issues, do not see the emergency nature

Thomas M. Hosea  
TIA release as written is not of emergency nature.

Beth C. Lancaster  
TIA is not an emergency nature.

Douglas Menard  
TC Needs more work on this TIA.

Jeffrey O. Stull  
Additional work is needed by the Technical Committee to gain resolution on this issue.

William A. Van Lent  
Not of an Emergency Nature

Michael F. McKenna  
This is not of an emergency nature as there is still work to be done.

John H. Morris  
Needs to be resolved by TC

Does not support the requirements for emergency nature and should have more TC discussion.

Steven H. Weinstein

Richard Weise  
Additional information and clarification required, back to TC

Abstain  
1

James B. Area  
A
MEMORANDUM

TO: Technical Committee on Hazardous Materials Protective Clothing and Equipment

FROM: Yvonne Smith, Technical Committee Administrator

DATE: June 27, 2019

SUBJECT: NFPA 1994 Proposed TIA No. 1434 FINAL TC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

31 Eligible to Vote
6 Not Returned (Buck, D. Green, Dulisse, Kennedy, Kirsteins, Thompson)

<table>
<thead>
<tr>
<th>Technical Merit:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Abstentions</td>
<td>0 Abstentions</td>
</tr>
<tr>
<td>11 Agree</td>
<td>12 Agree</td>
</tr>
<tr>
<td>14 Disagree (Allen, Baxter, Fithian,</td>
<td>13 Disagree (Allen, Baxter, Fithian,</td>
</tr>
<tr>
<td>Harkness, Haskell, III, Horowitz,</td>
<td>Haskell, III, Horowitz,</td>
</tr>
<tr>
<td>Lancaster, Lehtonen, Lovasic,</td>
<td>Lancaster, Lehtonen, Lovasic,</td>
</tr>
<tr>
<td>Mann, Newsom, Nystrom, Stull,</td>
<td>Mann, Newsom, Nystrom, Stull,</td>
</tr>
<tr>
<td>Wiseman)</td>
<td>Wiseman)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required. \[
\text{[31 eligible \div 2 = 15.5 = (16)]}
\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 19.

\[
\text{[31 eligible to vote - 6 not returned - 0 abstentions = 25 \times 0.75 = 18.75]}
\]

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

**Appeal Closing Date** for this TIA is **Tuesday, July 2, 2019**.
I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1434 to Add new paragraphs in Chapter 7.

Eligible to Vote: 31
Not Returned: 6
Donald B. Thompson, Ted S. Buck, Dustin Green, Jeffrey Kennedy, Paul Dulisse, Andra Kirsteins

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Russell R. Greene</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Kyle Kerbow</td>
<td>Agree</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Brian J. Clifford</td>
<td>I concur</td>
<td></td>
</tr>
<tr>
<td>Michael Ziskin</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Richard P. Daly, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert E. Shelton</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>James P. Zeigler</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Nicholas Del Re</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Robert West</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Ryan C. Hirschey</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>John E. Wisner, Jr.</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>William A. Fithian</td>
<td>Additional language is necessary to determine what is meant by collection of liquid, which will need to take place by the Technical Committee (TC).</td>
<td></td>
</tr>
<tr>
<td>Amanda H. Newsom</td>
<td>This TIA does not correct the anticipated issue.</td>
<td></td>
</tr>
<tr>
<td>Jason L. Allen</td>
<td>Additional clarification is needed</td>
<td></td>
</tr>
<tr>
<td>Jeffrey O. Stull</td>
<td>While it is recognized that there are inconsistencies between NFPA 1991 and 1994, this specific topic should be harmonized across all three standards -- NFPA 1991, 1992, and 1994 in a manner that permits uniform interpretation.</td>
<td></td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td>While this TIA points out technical issues with the standard as written the TIA does not necessarily solve them. The TC should address and submit a TIA or revise the standard accordingly.</td>
<td></td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>Technical Merit not supported</td>
<td></td>
</tr>
<tr>
<td>Beth C. Lancaster</td>
<td>TIA does not address a known issue.</td>
<td></td>
</tr>
<tr>
<td>Allen Ira Harkness</td>
<td>Cannot agree with TIA as written. More technical committee discussion needed.</td>
<td></td>
</tr>
<tr>
<td>Ulf Nystrom</td>
<td>The wording &quot;collect liquid&quot; needs a definition. The issue affects other hazmat standards as well and the committee will need to agree on an overall approach before implementing any changes.</td>
<td></td>
</tr>
</tbody>
</table>
Similar to TIA-1429: This needs Technical Committee discussion. Additionally, this needs to define what "liquid collection" means including a test method and clear failure criteria. There is also no data provided to substantiate that liquid collection is an increased permeation risk. NFPA 1944 is a performance based standard, so the TC needs to really determine the correct hazard. Finally, the shower test is designed to test interfaces, and should no be used as a proxy for real splash hazard scenarios (not 20 minutes long). This should be rejected and discussed as part of the 2020 1st draft.

The proposed additional language would harmonize NFPA 1994 with NFPA 1991; however, the committee has not had an opportunity to weigh in on this issue to determine if the proposed criteria are appropriate for NFPA 1994 ensembles and thus it is not considered to be of an emergency nature.

Proposed new sections, as written, raise many questions. Such as what does "collect" liquid mean for a woven or knit outer glove?

Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.

The interpretation of outer glove or footwear is contingent of agency choice of outerwear and how they secure them.

0
I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 31
Not Returned: 6
Donald B.
Thompson, Ted S.
Buck, Dustin
Green, Jeffrey
Kennedy, Paul
Dulisse, Andra Kirsteins

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agree</strong></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Russell R. Greene</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Kyle Kerbow</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
<td></td>
</tr>
<tr>
<td>Allen Ira Harkness</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Brian J. Clifford</td>
<td>I concur</td>
<td></td>
</tr>
<tr>
<td>Michael Ziskin</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
<td></td>
</tr>
<tr>
<td>Richard P. Daly, Jr.</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Robert E. Shelton</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>James P. Zeigler</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Nicholas Del Re</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Robert West</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Ryan C. Hirschey</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>John E. Wisner, Jr.</td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

<p>| <strong>Disagree</strong> | 13 | |
| William A. Fithian | This requires additional discussion by the TC. |
| Amanda H. Newsom | This TIA does not correct the anticipated issue. |
| Jason L. Allen | Additional clarification is needed |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeffrey O. Stull</td>
<td>Additional work is needed by the technical committee for properly addressing these specific issues.</td>
</tr>
<tr>
<td>Karen E. Lehtonen</td>
<td>I disagree with the emergency nature reason submitted. The TC should take the time to revise the standards properly to address the issues either in the normal revision process or via another TIA.</td>
</tr>
<tr>
<td>William E. Haskell, III</td>
<td>No Emergency Nature</td>
</tr>
<tr>
<td>Beth C. Lancaster</td>
<td>TIA is not of an emergency nature.</td>
</tr>
<tr>
<td>Ulf Nystrom</td>
<td>The issue affects other hazmat standards as well and the committee needs to agree on an overall approach before implementing changes to each standard.</td>
</tr>
<tr>
<td>Jason Horowitz</td>
<td>Not emergency nature</td>
</tr>
<tr>
<td>Christina M. Baxter</td>
<td>This would best be handled at the committee level versus as a TIA; not emergency in nature.</td>
</tr>
<tr>
<td>Susan L. Lovasic</td>
<td>These proposed changes are not of an emergency nature.</td>
</tr>
<tr>
<td>Philip C. Mann</td>
<td>Based on committee telecon agreement TIA should be rejected and issued handled in First Draft Meeting January 2020.</td>
</tr>
<tr>
<td>Darrell B Wiseman</td>
<td>Not of emergency nature as the garment glove is tested to standard.</td>
</tr>
<tr>
<td>Abstain</td>
<td>0</td>
</tr>
</tbody>
</table>
NFPA 5000®-2018 and Proposed 2021 Editions
Building Construction and Safety Code®

TIA Log No.: 1457
Reference: 11.2.12.1.1(4)(new) and 11.2.12.2.6(new)
Comment Closing Date: June 20, 2019
Submitters: Waymon Jackson, University of Texas at Austin
www.nfpa.org/5000

1. Add a new paragraph 11.2.12.1.1(4) to read as follows:

   **11.2.12.1.1(4)** The two-way communication system shall be installed in accordance with the applicable requirements of NFPA 72.

2. Add a new paragraph 11.2.12.2.6 to read as follows and renumber subsequent paragraph and Annex A section accordingly:

   **11.2.12.2.6** The two-way communication system required by 11.2.12.2.5 shall be installed in accordance with the applicable requirements of NFPA 72.

**Substantiation:** The current code language does not specify any installation requirements for area of refuge two-way communication systems. NFPA 72 provides requirements for pathway survivability, pathway performance capabilities under abnormal (fault) conditions, and requirements for pathway integrity monitoring. If a reference to NFPA 72 is not provided, area of refuge two-way communication systems may not have the robustness to survive an act by fire or be assured of their operability during emergency events.

**Emergency Nature.** The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

There are area of refuge two-way communication systems currently being installed with no installation requirements because no reference is made within NFPA 5000 to comply with the installation requirements of NFPA 72.
MEMORANDUM

TO: Correlating Committee on Building Code
FROM: Kelly Carey, Project Administrator
DATE: June 24, 2019
SUBJECT: NFPA 5000 Proposed TIA No. 1457 FINAL CC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(b) in the NFPA Regs, the preliminary results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Correlation Issues) and Ballot Item No. 2 (Emergency Nature).

16 Eligible to Vote
4 Not Returned (Bellamy, Frable Hansen, O’Connor)

<table>
<thead>
<tr>
<th>Correlation Issues:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Abstentions</td>
<td>0 Abstentions</td>
</tr>
<tr>
<td>9 Agree (w/ comment, Hugo, Willse)</td>
<td>4 Agree (w/ comment, Shah)</td>
</tr>
<tr>
<td>3 Disagree (Humble, Jones, Wooldridge)</td>
<td>8 Disagree (Coats, Harrington, Hugo, Humble, Jones, Quiter, Willse, Wooldridge)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative ¾ vote]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[
16 \text{ eligible} \div 2 = 8 + 1 = 9
\]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is 9.

\[
(16 \text{ eligible to vote} - 4 \text{ not returned} - 0 \text{ abstentions} = 12 \times 0.75 = 9)
\]

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

Appeal Closing Date for this TIA is June 29, 2019.

Attachment
NFPA 5000 CORRELATING COMMITTEE ON BUILDING CODE
PROPOSED TENTATIVE INTERIM AMENDMENT NO. 1457 - FINAL BALLOT RESULTS

QUESTION NO. 1: I AGREE there are no CORRELATION ISSUES in accordance with 3.4.2 and 3.4.3 of the NFPA Regs.

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Richard Jay Roberts</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Peter J. Willse</td>
<td></td>
<td>Since the ballot failed, there is nothing to change.</td>
</tr>
<tr>
<td>James R. Quiter</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>John C. Harrington</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Howard Hopper</td>
<td></td>
<td>Agree no correlation issues.</td>
</tr>
<tr>
<td>Jeffrey M. Hugo</td>
<td></td>
<td>Agree that the reference to an installation standard is missing.</td>
</tr>
<tr>
<td>Paul D. Coats</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Faimeen Shah</td>
<td></td>
<td>Do not see any correlation issues</td>
</tr>
<tr>
<td>Leon F. Vinci</td>
<td></td>
<td>Agree</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disagree</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonathan Humble</td>
<td></td>
</tr>
<tr>
<td>Jerry Wooldridge</td>
<td></td>
</tr>
<tr>
<td>Gerald H. Jones</td>
<td></td>
</tr>
</tbody>
</table>

| Abstain | 0 |

QUESTION NO. 2: I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.
Eligible to Vote: 16  
Not Returned: 4  
Tracey D. Bellamy, David W. Frable, Daniel J. O’Connor, Raymond N. Hansen

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Agree          | 4     | Agree with A and D  
Agree with emergency nature.  
I’m not fully convinced if this is of an emergency nature but do agree this proposal will be beneficial in providing design guidance.  
A |
| Leon F. Vinci  |       |          |
| Disagree       | 8     | I do not believe that this is of an emergency nature. The reason statement does not substantiate a need for immediate change, and by the allowance of the current provisions of NFPA 5000 NFPA 72 is permitted, but not exclusively required, to be used. Therefore, it is my opinion that if there is a desire to have NFPA 72 as the only standard then it should be submitted as a proposal through the traditional process. |
| Jonathan Humble|       |          |
|                |       | Since the ballot failed, there is no emergency |
| Peter J. Willse|       |          |
| James R. Quiter|       | I believe this is a code change. It is not clear if it was the intent of the original author. It should go through the normal process. |
| John C. Harrington|   | Not of an emergency nature, should be dealt with during routine committee cycle and by full committee. |
| Jeffrey M. Hugo|       | Several TC negatives point out that this is not of an emergency nature. |
| Jerry Wooldridge|      | I don’t feel that this issue is a true emergency and could be addressed by the TC during their next TC meeting. |
| Paul D. Coats  |       | I agree with commenters on the TC that a requirement to comply with NFPA 72 for the two-way communication system would be a new requirement in the code and is not an omission, and therefore does not qualify as emergency in nature. |
| Gerald H. Jones|       | New task force should develop comprehensive provisions |
MEMORANDUM

TO: Technical Committee on Means of Egress

FROM: Kelly Carey, Project Administrator

DATE: June 24, 2019

SUBJECT: NFPA 5000 Proposed TIA No. 1457 FINAL TC BALLOT RESULTS

No comments were received on this TIA, therefore, according to 5.6(a) in the NFPA Regs, the final results show this TIA HAS NOT achieved the ¾ majority vote needed on both Ballot Item No. 1 (Technical Merit) and Ballot Item No. 2 (Emergency Nature).

32 Eligible to Vote
6 Not Returned (Chan, Day, DiPilla, Lathrop, Perry, Phelan)

<table>
<thead>
<tr>
<th>Technical Merit:</th>
<th>Emergency Nature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Abstention (Tierney)</td>
<td>0 Abstentions</td>
</tr>
<tr>
<td>20 Agree (w/comment, Coombs, de Vries, Jackson, Saks)</td>
<td>17 Agree (w/comment, Jackson)</td>
</tr>
<tr>
<td>5 Disagree (Bush, Collins, Crowley, Frable, Tilton)</td>
<td>9 Disagree (Bush, Collins, de Vries, Crowley, Frable, Hoskins, Saks Tierney, Tilton)</td>
</tr>
</tbody>
</table>

There are two criteria necessary to pass ballot [(1) simple majority (2) affirmative vote of ¾ of ballots received]. Both questions must pass ballot in order to recommend that the Standards Council issue this TIA.

(1) In all cases, an affirmative vote of at least a simple majority of the total membership eligible to vote is required.

\[
\text{32 eligible} \div 2 = 16 + 1 = (17) \]

(2) The number of affirmative votes needed to satisfy the ¾ requirement is as follows:

- Technical Merit: [32 eligible to vote - 6 not returned - 1 abstentions = 25 \times 0.75 = 18.75 (19)]
- Emergency Nature: (32 eligible to vote - 6 not returned - 0 abstentions = 26 \times 0.75 = 19.5 [20])

Ballot comments are attached for your review.

The Regs at 1.6.2.(c) state: An appeal relating to a proposed Tentative Interim Amendment that has been submitted for processing pursuant to Section 5.2 shall be filed no later than 5 days after the notice of the TIA final ballot results are published in accordance with 4.2.6.

**Appeal Closing Date** for this TIA is June 29, 2019.

Eligible to Vote: 32
Not Returned: 6
James K. Lathrop, Steven Di Pilla, Robert R. Perry, Richard L. Day, Kevin Phelan, Mark Chan

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Ronald R. Farr</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Waymon Jackson</td>
<td></td>
<td>I currently have an area of refuge (AOR) system being installed that is not being installed to NFPA 72 standards. There is no level of survivability provided for the AOR communication system. The justification was, &quot;Since there is no mention of NFPA 72 within the relevant area of refuge two-way emergency communication system sections, it may be concluded that NFPA 101 does not consider NFPA 72 applicable to the design of this system.</td>
</tr>
<tr>
<td>Christopher Coombs</td>
<td></td>
<td>No comments, agree with providing an associated reference standard for baseline life safety protections.</td>
</tr>
<tr>
<td>Jake Pauls</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Rita C. Guest</td>
<td></td>
<td>I AGREE with the TECHNICAL MERITS of the Proposed TIA Log No. 1457 to add 11.2.12.1.1(4)(new) and 11.2.12.2.6(new) to NFPA 5000 2018 Edition and the Proposed 2021 Edition.</td>
</tr>
<tr>
<td>Denise L. Pappas</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Bryan Lawrence Hoskins</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Joseph H. Versteeg</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>Vincent Quinterno</td>
<td></td>
<td>AGREE</td>
</tr>
<tr>
<td>Name</td>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>--------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>David A. de Vries</td>
<td>I agree with the submitter and also generally agree with the comments of Dave Frable, though not his Disagree vote, that a required communication system used for life safety purposes should be installed, tested and maintained in accordance with an appropriate NFPA standard. I further agree with Mr. Frable that the requirements should more appropriately be in Chapter 9 and be referenced by Chapter 7. The TCC could so direct.</td>
<td></td>
</tr>
<tr>
<td>Mark Larson</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>J. Francois Simard</td>
<td>I agree</td>
<td></td>
</tr>
<tr>
<td>Kenneth Saks</td>
<td>This is warranted and there is usefulness for having a standard and guidance for how to install 2-way communication systems.</td>
<td></td>
</tr>
<tr>
<td>Fred M. Bales</td>
<td>agree</td>
<td></td>
</tr>
<tr>
<td>Charles V. Barlow</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Ryan Alles</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Brian A. Marcyjanik</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Marc Mueller</td>
<td>I agree with the technical merits of the proposed TIA Log No. 1457 to add 11.2.12.1.1(4) and 11.2.12.2.6 to NFPA 5000 2018 Edition and the Proposed 2021 Edition.</td>
<td></td>
</tr>
<tr>
<td>Michael S. Shulman</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td>Cesar Lujan</td>
<td>Agree</td>
<td></td>
</tr>
<tr>
<td><strong>Disagree</strong></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Michael A. Crowley</td>
<td>There is no automatic sprinkler recognition in this proposal. In sprinkler protected areas of refugee the risk has not been stated by the proponents. We have not seen a documented problem without this testing.</td>
<td></td>
</tr>
<tr>
<td>Kenneth E. Bush</td>
<td>I do not believe that this original provision was intended to require that the communication system comply with any particular code or standard. Rather it was intended to permit the flexibility to install any means of communication that was acceptable to the AHJ without requiring compliance with the strict provisions of NFPA 72.</td>
<td></td>
</tr>
</tbody>
</table>
David W. Frable

In concept, I agree with the submitter that two-way communication systems should be installed and maintained in accordance with a NFPA Code or Standard. It should be noted that the subject requirement for having an area of refuge provided with a two-way communication system first appeared in NFPA 5000 in 2006 and the requirement for having the elevator landing provided with a two-way communication system first appeared in the 2009 edition of NFPA 5000. Whereas, the NFPA 72 requirements for an area of refuge provided with a two-way communication system did not appear in NFPA 72 until 2010 and the requirements for stairway communication systems, elevator landing communication systems, and occupant evacuation elevator lobby communication systems did not appear in NFPA 72 until 2019. It appears that the subject two-way communication systems were not considered fire protection equipment by the fire alarm industry until 2019. In addition, the subject TIA only addresses two-way communication systems in areas of refuge(s) and not elevator landing communication systems in towers or occupant evacuation elevator lobby communication systems. Also, if it is determined if two-way communication systems are now considered as fire protection equipment, it would be more appropriate if a new sub-section in Chapter 55, Section 55.2 be developed to address all areas where two-way communication systems are provided. The requirements in Chapter 11 would then reference Chapter 55. Therefore, I would recommend that it would be more appropriate if this TIA be denied and the TCC request the TC to address this issue regarding not only two-way communication systems in areas of refuge(s) but also stairway communication systems, elevator landing communication systems, and occupant evacuation elevator lobby communication systems via a task group and act on this matter during the TC meeting in June for the 2021 edition of NFPA 5000.

David S. Collins

I agree with Dave Frable, the TIA is overly broad and would apply to facilities incorrectly.
The proponent has not adequately provided quantitative data demonstrating operational failure of two-way communication devices. NFPA 72 currently requires two-way communication devices to be inspected and their condition verified annually (see Table 14.3.1, edition 2019, NFPA 72). Implementation of the public comment, as written, could unnecessarily burden installers to comply with pathway survivability, pathway performance criteria, and pathway supervisory reporting, currently identified in NFPA 72. Allowable two-way devices, such as telephones, are not capable of supporting the rigorous demands that NFPA 72 pathway compliance would require.

**QUESTION NO. 2:** I AGREE that the subject is of an EMERGENCY NATURE for one or more of the reasons noted in the Instructions box.

Eligible to Vote: 32  
Not Returned: 6  
James K. Lathrop, Steven Di Pilla, Robert R. Perry, Richard L. Day, Kevin Phelan, Mark Chan

<table>
<thead>
<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>17</td>
<td>A. The standard contains an error or an omission that was overlooked during the regular revision process.</td>
</tr>
<tr>
<td>Ronald R. Farr</td>
<td></td>
<td>Since there is no mention of NFPA 72 within the relevant area of refuge two-way emergency communication system sections, other AHJ's may conclude that NFPA 101 does not consider NFPA 72 applicable to the design and installation of the system. If not acted upon now, AOR systems with no survivability could be installed until the 2024 edition is released.</td>
</tr>
<tr>
<td>Waymon Jackson</td>
<td></td>
<td>No comments, agree with providing an associated reference standard for baseline life safety protections.</td>
</tr>
<tr>
<td>Christopher Coombs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Jake Pauls
A. A. The standard contains an error or an omission that was overlooked during the regular revision process.

Rita C. Guest
I AGREE that the subject is of an EMERGENCY NATURE. The standard contains an error or an omission that was overlooked during the regular revision process.

Denise L. Pappas
Agree, A & D

Joseph H. Versteeg
Agree

Fred M. Bales
The standard contains an error or an omission that was overlooked during the regular revision process.

Charles V. Barlow
A.

Ryan Alles
I agree most with letter A.

Marc Mueller
I agree that the subject is of an Emergency Nature for one or more of the reasons noted in the Instructions box.

Michael S. Shulman
D. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.

Cesar Lujan
The standard contains an error or an omission that was overlooked during the regular revision process.

Disagree
9

Michael A. Crowley
See above

Kenneth E. Bush
Since this TIA does not correct a previous action, it is not of an Emergency Nature.

David W. Frable
I do not believe this TIA meets the criteria for being considered “emergency in nature” based on my negative comment in Question 1 regarding this TIA.

David S. Collins
There is no error in the code, this constutes a change to the code and is not of an emergency nature.

Michael Tierney
Doesn't appear to be of an emergency nature as pointed out by other
Bryan Lawrence Hoskins  
This has been in the code for many cycles and the emergency nature is not apparent.

David A. de Vries  
I concur with Mr. Elvove and others that this does not rise to the level of an emergency and the subject can wait until the next cycle.

Kenneth Saks  
This has been in the code as-is for several editions now. It can't be an emergency if it's been worded this way for years. There is no new hazard or previously unknown one, or any of the other emergency nature reasons as described by NFPA.

Kelly R. Tilton  
Although it is agreed with the proponent that additional inspection and testing procedures should be defined, it is not believed that TIA 1405 be designated an emergency nature based on the lack of documented data in which two way communication systems have failed.

Abstain  
0
To: Standards Council

From: Debra Gursha, NFPA Staff

Date: April 15, 2019


CC: Guy Colonna
    Dawn Bellis
    Linda Fuller
    Mario Orozco, Zurich Insurance

On March 19-20, 2019, NFPA staff held a Second Draft meeting in San Antonio, Texas for the Fall 2019 revision cycle of NFPA 120 **Standard for Fire Prevention and Control in Coal Mines** and NFPA 122 **Standard for Fire Prevention and Control in Metal/Nonmetal Mining and Metal Mineral Processing Facilities** documents. These standards are managed by the Technical Committee on Mining Facilities (MIN-AAA).

During the meeting, there was a request made by the chair of the Technical Committee on Mining Facilities, Mr. Mario Orozco, to place NFPA 120 and 122 on a one time, 3-year revision cycle. This would allow the technical committee to update and expand both standards simultaneously to reflect rapidly changing processing technologies for the coal and metal mining industries. The Technical Committee supports this request. Currently, both NFPA 120 and 122 are on the 5-year revision cycle.

Thank you for considering this request on behalf of the MIN-AAA Technical Committee on Mining Facilities.
Hey Linda,

The EEC-AAA technical committee would like the Standard Council to consider placing NFPA 496, 497 and 499 on a 3 year revision cycle with the next edition to be issued in 2024. The edition currently being developed will be issued in 2021. The EEC-AAA committee work on NFPA 496, 497, and 499 effects and is affected by NFPA 30, 30A, 61, 70, 484, 652 and 654. For this reason the EEC-AAA TC would like its documents to lead or lag these identified documents by a consistent time. NFPA 61, 70 and 654 next editions will be 2020, NPFA 30A will be 2021, and NFPA 484 and 652 next editions will be 2022. If these documents maintain a 3 year cycle, the proposed new cycle for NFPA 496, 497, and 499 would allow a more synchronized and current development process.

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www.nfpa.org

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Thank you!

The committee is requesting to move from a five year cycle to a three year cycle. The most recent edition of ASCE 7, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, created a new appendix dealing with the performance-based design procedures for fire effects on structures. In the commentary to one of the new appendix sections, NFPA 557 is referenced. With the new reference to NFPA 557, the committee would like to review the document on a more frequent basis to ensure it is as up to date as possible. In addition, the Fire Protection Research Foundation is in the process of completing a Fuel Load Survey project to help the committee update the recommended process to determine a fuel load. The current methodology recommended in NFPA 557 does not take advantage of new technology solutions.

If you have any questions or need any further information please let me know.

Thanks,
Val

Val Ziavras, P.E.
Fire Protection Engineer | NFPA
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+1 617 984-7118
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Hi Val, you can do what you just did, send an email requesting the slip cycle and any reasoning behind the request.

Mary Maynard Davy  
Standards Council Administrator | NFPA  
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617-984-7246  
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From: Ziavras, Valerie  
Sent: Wednesday, May 15, 2019 1:16 PM  
To: Maynard, Mary <mmaynard@NFPA.org>  
Subject: Standards Council Request

Hi Mary,

The TC on Hazard and Risk of Contents and Furnishings would like to request that 557 be moved to a 3 year cycle. I've never had a committee request a change so I'm not sure what other information you need. Please let me know and I'll be sure to get you the information.

Thanks!

Val Ziavras, P.E.  
Fire Protection Engineer | NFPA  
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Quincy, MA 02169-7471  
+1 617 984-7118  
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Good morning, Linda –

This is a request to put 951 into an Annual 2021 cycle based on the reorganization of some of the chapter material in that document at the first draft meeting.

Per our conversation and having checked with Ed, this will work with the ERRS document consolidation schedule and with the editorial and production schedule to get the work completed.

Thank You -

Chris Farrell
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+1 617 984-7325
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Please Note: Any comments, suggested text changes, or technical issues related to NFPA Standards posted or raised in this communication are not submissions to the NFPA standards development process and therefore will not be considered by the technical committee(s) responsible for NFPA Standards development. To learn how to participate in the NFPA standards development process and submit proposed text for consideration by the responsible technical committee(s), please go to www.nfpa.org/submitpi for instructions.
To the members of the NFPA Standards Council,

The Correlating Committee on Combustible Dust, as well as the Technical Committees on Fundamentals of Combustible Dust; Handling and Conveying of Dusts, Vapors, and Gases; Agricultural Dusts; Combustible Metals and Metal Dusts; and Wood and Cellulosic Materials Processing, has been discussing the Standards Council decisions related to consolidating the combustible dust documents. The following pages include notes developed during calls with each Technical Committee. Note that the items are not representative of consensus of the committees, rather they are a brainstorming list of individual’s thoughts.

The Correlating Committee on Combustible Dusts responds to SC No. 19-4-18 as follows:

The Standards Council action No. 19-4-18 references the “Council’s direction in 2011 to consolidate these projects into a single standard” but looking back at records, the Correlating Committee is not aware of such direction. This topic was first raised in SC No. 10-3-19, but the Combustible Dust Task Group that met under the direction of the Standards Council on January 5, 2011 proposed the formation of the Technical Committee on Fundamentals and the Correlating Committee. The subsequent SC No. 11-3-24 decision did not include formation of a single combustible dust standard. The Standards Council direction in March of 2011 was to form a Technical Correlating Committee and a Technical Committee on Fundamentals, per SC No. 11-3-24. Since 2011, the Technical Committees and Correlating Committee on Combustible Dust have been working to accomplish this direction and to align the standards for ease of use.

Is it the intent of the Standards Council that the combustible dust documents must be combined into a single combustible dust standard, or can the Correlating Committee proceed by investigating other possible paths, which would include a single combustible dust standard as well as consideration of other approaches? The other approaches could still accomplish the goal of maximizing the usefulness to the users of the standards. The Correlating Committee awaits clarification on this point so that they can move forward.

Thank you for your time,

Laura Moreno
Staff Liaison
### Pros
- Combining all documents into one standard would move towards original intent of having a fundamentals document. General concepts would not need to be repeated
- Repetitive requirements in NFPA 654 would be removed (and all commodity-specific docs, but most impact on NFPA 654 which was traditionally a catch-all) - would result in a much smaller chapter
- Provides the opportunity for individual unit operations to be defined for the commodities - those committees can focus less on the general requirements and more on the specific unit operations
- Makes using the document and finding requirements easier on the user, and user doesn’t have to jump between documents
- Chapters could be added for operations that span multiple commodities
- Readers would see NFPA 652 fundamental information first, then go to the commodity-specific chapter, as opposed to now where users may use 652 as a supplement to commodity-specific standard
- Single revision cycle – issues can be identified and addressed within one cycle instead of over time
- Helps users compare commodity-specific requirements and fundamentals if they are in the same document

### Cons
- Requirements unique to specific occupancies would need to remain in a separate document (for example, lumber storage in NFPA 664, liquid sulfur handling in NFPA 655). Users would still need to refer to two documents. This refers to requirements that are not specific to combustible dusts.
- Cost of standard increase
- Task of NFPA 652 committee will get larger to keep identifying and unifying the commonalities. Might need to break the Fundamentals committee into separate panels eventually (for example NEC panels)
- Potential user difficulties with such a large document (ease of use). Could be intimidating in size for people who don’t use them every day
- Need to retain integrity of commodity-specific standards
- Users might overlook more stringent commodity-specific requirements if they see a related requirement in fundamentals section (might need to have language in fundamentals section to direct users)

### Notes:
- Requirement unique to specific occupancies would need to remain in a separate document (for example, lumber storage in NFPA 664, liquid sulfur handling in NFPA 655). Users would still need to refer to two documents. This refers to requirements that are not specific to combustible dusts.
- Cost of standard increase
- Task of NFPA 652 committee will get larger to keep identifying and unifying the commonalities. Might need to break the Fundamentals committee into separate panels eventually (for example NEC panels)
- Potential user difficulties with such a large document (ease of use). Could be intimidating in size for people who don’t use them every day
- Need to retain integrity of commodity-specific standards
- Users might overlook more stringent commodity-specific requirements if they see a related requirement in fundamentals section (might need to have language in fundamentals section to direct users)
- Effect to NFPA 652 would be to revise the conflict section and make sure that the conflict language in each chapter is consistent
- Each of the NFPA industry-specific standard would be included in the combined standard as a chapter. No material will be lost.
- Would like to see what the proposed layout/organization would look like
- Informal vote- in favor of combining
### Technical Committee on Agricultural Dusts (NFPA 61)

**Notes on Combustible Dust Document Consolidation, May 13, 2019**

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Would clear up some confusion with regulatory application</td>
<td>• See letter from The American Feed Industry Association (AFIA), the Corn Refiners Association (CRA), the National Grain and Feed Association (NGFA), the National Oilseed Processors Association (NOPA), the North American Millers Association (NAMA) and the U.S. Beet Sugar Association (USBSA), March 1, 2019 <em>(attached)</em></td>
</tr>
<tr>
<td>• Could remove some material from NFPA 652 and put into appropriate sections</td>
<td>• Creates a document with lots of information that is not useful to food industry</td>
</tr>
<tr>
<td>• NFPA 61 committee has experience and knowledge that can be shared with other industries, this would allow that (i.e. managing the risk of bucket elevators)</td>
<td>• Dilutes the efforts of individual industry groups</td>
</tr>
<tr>
<td>• Integrity of NFPA 61 could be maintained</td>
<td>• Process moving forward is unknown- how conflicts will be resolved, how definitions will be handled, what the standard will look like</td>
</tr>
<tr>
<td>• Convey a cohesive message about dust hazards- the duality of advice that is out there now confuses everyone</td>
<td>• History of NFPA 652 suggests that NFPA 61 committee would have less influence over fundamentals chapter</td>
</tr>
<tr>
<td></td>
<td>• Not consistent agreement or alignment on what fundamental requirements are</td>
</tr>
<tr>
<td></td>
<td>• Conflicts should not have been included in notes file- not intended to be changed</td>
</tr>
<tr>
<td></td>
<td>• NFPA 652 covers more than just fundamentals. In a combined document, the beginning chapters should be more brief and only include fundamentals (rather than trying to drive change or add additional requirements to other industries)</td>
</tr>
</tbody>
</table>

**Notes:**

- Time for input and review has not been adequate
- Face to face meetings of all parties involved should happen before any decisions are made
- Committee discussed this at the Second Draft meeting in January 2019 and voted against combining the documents.
- This list is a brainstorming list of individual’s thoughts, and has not been voted on by the committee. *(not consensus)*
- Asking for a list of Pros and Cons of why we should or should not combine the Dust standards, over a single phone call, is impractical and does not allow adequate time, discussion, and debate for such an important topic. This methodology is totally inconsistent with the way in which we have considered changes in the NFPA standards in the past. This list of Pros and Cons and any other discussions or proposed changes, including combining the standards, should be discussed and debating in a meeting of all members of the committee, with an adequate time period to gather all information including
Pros and Cons, before being considered by the Correlating Committee or Standards Council.

(statement voted on/approved by committee)

- The conflict information provided in the “Dust Document Consolidation Notes” file was for information only and was not intended to reflect any change in procedure or the committee’s intent to change the conflict section.
March 1, 2019

Kevin Kreitman, Chair  
NFPA Combustible Dust Correlating Committee  
National Fire Protection Association


Dear Chairman Kreitman,

The American Feed Industry Association (AFIA), the Corn Refiners Association (CRA), the National Grain and Feed Association (NGFA), the National Oilseed Processors Association (NOPA), the North American Millers Association (NAMA) and the U.S. Beet Sugar Association (USBSA) appreciate the opportunity to submit this statement in response to a recent memorandum issued in the name of the Standards Council of the National Fire Protection Association. The memorandum requests an update on the Correlating Committee’s (CC) efforts to merge the National Fire Protection Association’s (NFPA) six combustible dust hazard processes NFPA 61 (grain dusts), NFPA 484 (metal dusts), NFPA 652 (general industry), NFPA 654 (combustible particulates), NFPA 655 (sulfur dust), and NFPA 664 (wood dust) into a single standard.

Background of Our Request

On December 21, 2018, Linda Fuller sent the following memorandum on “Merger of Dust Standards” to the Combustible Dust Correlating Committee, with copies to the various specialized technical committees on combustible dust. It stated:

I am transmitting to you herewith the following action of the Standards Council (December 6-7, 2018):

The Standards Council reviewed the 2011 decision to direct creation of a Correlating Committee on Combustible Dusts and a new document on combustible dust fundamentals, NFPA 652. Now that NFPA 652 has been developed, issued, and the Correlating Committee has overseen revisions of the preexisting commodity-specific dust standards, the Council requests an update at the April 2019 Council meeting by the Correlating Committee on the status of efforts to merge all dust standard requirements currently within NFPA 61, 484, 652, 654, 655, and 664 into a single standard, namely NFPA 652 per the Council’s 2011 decision. The Correlating Committee update is to include a plan of action and timeline for accomplishing the Council’s directive. The Committees subject to this project will continue to function the same once a single standard exists; however, the work of the distinct committees will be chapters rather than multiple, separate standards.
Our Request and the Reasons for It

We respectfully believe that the above memorandum does not accurately portray the Standards Council’s 2011 decision. Its March 25, 2011, memorandum stated in part: “The Council has also voted to have the newly formed TC develop a document that shall provide the generally applicable requirements for managing the fire and explosion hazards of combustible dusts and combustible particulate solids [now, NFPA 652]. This standard shall provide the user with general requirements and directs the user to the appropriate industry or commodity-specific standard.” (Emphasis added.)

We ask that the above December 21, 2018, memorandum either be qualified so to correctly reflect the 2011 communication from the Standards Council or be withdrawn for further consideration.

We further believe that, even if the issue were considered anew, NFPA 61 should not be combined, either in substance or in form, with other combustible dust standards, that it should remain a free-standing standard both in substance and in form, and that its drafting standard be allowed to continue to ensure that NFPA 61 represent the consensus of the agricultural industry that it covers. We present below our views on this point in detail, beginning with our description of the signatories to this letter.

The Signatories

AFIA is the principal organization representing the American animal food industry and its suppliers. Membership includes over 680 domestic and international companies including manufacturers, ingredient suppliers, animal health companies, equipment manufacturers, integrated livestock and poultry producers, and firms providing other goods and services to the animal food industry, plus state, regional and national associations. AFIA companies today produce over 75 percent of the commercial animal feed manufactured in the United States each year.

CRA is the national trade association representing the corn refining industry of the United States. CRA and its predecessors have served this important segment of American agribusiness since 1913. Corn refiners manufacture sweeteners, starch, advanced bioproducts, corn oil and feed products from corn components such as starch, oil, protein and fiber.

The NGFA, established in 1896, comprises more than 1,050-member companies that operate more than 7,000 facilities and handle more than 70 percent of the U.S. grain and oilseed crop. The NGFA’s membership encompasses all sectors of the industry, including country, terminal and export grain elevators; commercial feed and feed ingredient manufacturers; biofuels producers; cash grain and feed merchants; end-users of grain and grain products, including processors, flour millers, and livestock and poultry integrators; commodity futures brokers and commission merchants; and allied industries. In addition, affiliated with the NGFA are 33 state and regional grain and feed trade associations. Canadian and Mexican firms also are NGFA members.
NOPA represents 13 companies engaged in the production of food, feed and renewable fuels from oilseeds including soybeans, sunflower seeds, canola, flaxseed and safflower seeds. NOPA member companies operate 65 plants across 21 states and process nearly 2 billion bushels of oilseeds annually, including 59 plants that process approximately 95 percent of soybeans crushed in the U.S.

NAMA is the trade association representing the wheat, corn, oat and rye milling industry. NAMA’s 47-member companies operate 170 mills in 38 states and Canada. Their aggregate production of more than 160 million pounds per day is approximately 95 percent of the total industry capacity.

The USBSA is a government affairs and industry trade association that represents the manufacturers of beet sugar in the United States. Its nine-member firms operate 22 factories that process refined white sugar from sugar beets grown in 11 states. The U.S. beet sugar processing industry is 100% farmer-owned cooperative in structure, and every factory operates with organized union workers.

Taken together, the associations represent an important segment of the U.S. agricultural grain, feed, milling, processing and export industry. Our members are critical in handling and producing the domestic food and feed supply and promoting U.S. agricultural exports. Almost all the associations’ facilities are subject, in whole or in part, to the Occupational Safety and Health Administration’s (OSHA) grain handling standard (29 CFR 1910.272), as well as NFPA 61, Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities. Thus, representatives from AFIA, CRA, NGFA, NOPA, NAMA and USBSA serve on the NFPA 61 technical committee.

The Activities and Achievements of the NGFA

As the principal representative of the grain handling industry, the NGFA has been in the forefront of research and developments designed to enhance safety in grain handling, feed, grain processing, milling and export facility operations. The industry is dedicated to pursuing and promoting technological innovations, new practices, and safety training and education programs that contribute to safe and efficient grain handling operations. These programs are vital, first and foremost, to safeguard employees. The industry has demonstrated its commitment to safety, prior to and after the promulgation of the grain handling standard by OSHA, illustrated most recently by NGFA’s entering a Strategic Alliance with the Agency in September 2017.

The NGFA worked with OSHA to develop the grain handling standard (29 CFR 1910.272), which was promulgated in 1988, principally to address fires and explosions. Since the standard was implemented, the NGFA has worked with OSHA officials to clarify compliance requirements and convey this information to industry. In addition, OSHA has published compliance information, including a booklet explaining the standard’s requirements and enforcement guidance for compliance officers, clarifying regulatory obligations under the standard.
Further, Bill Wright, interim chair of the Chemical Safety Board (CSB), testified at the House Education and Labor Committee’s March 12, 2008 hearing on H.R. 5522 – the “Combustible Dust Explosion and Fire Prevention Act of 2008” – that the frequency of grain facility explosions declined by 60 percent following implementation of the OSHA grain-handling standard. This is a testament to the combination of industry research, education, training and government involvement.

According to combustible dust explosion data collected by Kansas State University, between 1976-2014, explosions declined 55 percent, injuries declined 79 percent and fatalities declined 95 percent as examined in five-year increments. The standard, combined with the industry’s proactive safety and education efforts, have been effective in reducing combustible dust hazards, even as the volume of grain handled has increased significantly during the same time frame. For instance, during 1976-1985, the grain industry handled annually an average of 13.6 billion bushels of grain, whereas from 2005-2014 an average of 19.1 billion bushels was handled. Even with this 40 percent increase in the quantity of bushels handled during these comparative time periods, the number of explosions, fatalities and injuries dropped significantly.

OSHA also is required, under Section 610 of the Regulatory Flexibility Act and Section 5 of Executive Order (EO) 12866, to conduct what it terms a “look-back” review of major standards every 10 years to determine if they still are relevant, or need to be updated or revised. After a review that lasted more than four years, OSHA issued a final report on March 14, 2003, announcing that it would retain its existing grain handling standard largely unchanged.

Based upon its review, the agency said it had determined that the standard had contributed to a marked reduction in injuries and fatalities from grain dust explosions. OSHA credited the industry with implementing improved safety procedures “in response to the…National Grain and Feed Association’s guidelines” that began the decline in deaths from grain dust explosions five years before the agency’s grain handling facility regulations even took effect. The agency also added the following statement from the Food and Allied Service Trades, AFL-CIO, in its report, “…since the promulgation of OSHA’s standard in December 1987, explosions were reduced by 42 percent, the number of injured was reduced by 60 percent and the number killed was down by 70 percent.” [Emphasis added.]

In this statement, the organizations begin by providing a detailed description of the grain, feed, milling and processing industry’s concerns on how combining the standards will impact the industry with increased costs and a greater regulatory burden. We then include a detailed description of grain dust standards within NFPA. We believe any attempt to harmonize these standards is likely to have a detrimental impact upon the proven effectiveness of the OSHA grain handling standard and the current version of NFPA 61. We submit that each standard has worked quite well and proven itself as balanced and useful in protecting lives and reducing injury levels.
Dramatic Decline in Number and Severity of Explosions

The benefits realized in addressing fire and explosion hazards, conducting research and education, and the implementation of the grain handling standard have combined to bring tremendous benefits to the grain handling industry. The savings resulting from the reduction of injuries and fatalities and the benefits to health and safety have greatly improved work conditions in our industry. Further, the economic benefit of implementing the grain handling standard and increasing the knowledge to avoid fires and explosions have been very beneficial.

Over the last 42 years, there has been an unprecedented decline in explosions, injuries and fatalities at grain handling facilities\(^1\). As shown in the table, incidents at facilities covered by the Occupational Safety and Health Administration’s (OSHA) grain handling standard, 29 CFR 1910.272 have trended lower for the period 1976 through 2018\(^2\).

\[
\begin{array}{|c|c|c|c|}
\hline
\hline
\text{Explosions} & 19.7 & 11.0 & 9.2 \\
\text{Injuries} & 33.1 & 11.7 & 9.2 \\
\text{Fatalities} & 10.3 & 1.5 & 1.2 \\
\hline
\end{array}
\]

\(^1\) The OSHA grain handling standard applies to the following types of grain handling facilities: grain elevators, feed mills, flour mills, rice mills, dust pelletizing plants, dry corn mills, soybean flaking operations, and dry grinding operations of soy cake.

\(^2\) Incident data source: Kansas State University, Purdue University and USDA's Grain Inspection, Packers and Stockyards Administration.
These data show that between 1976-1990 and 2006-2018, explosions declined 54 percent, injuries declined 72 percent and fatalities declined 89 percent. The grain handling standard has been effective even as the amount of grain handled has increased significantly. From 1976-1990, the grain industry handled annually an average of 13.4 billion bushels of grain, whereas from 2006-2018 an average of 20.0 billion bushels was handled. Even with this 49% increase in the quantity of bushels handled during these time periods, the number of explosions, fatalities and injuries dropped significantly.

It is indisputable that great strides have been made in reducing the incidence and severity of fires and explosions at grain handling facilities over the last 42 years. The record of improvement in reducing personal injury and equipment damage from grain dust explosions is proof that the grain handling standard has been and continues to be effective.

History of Grain Dust Standards in NFPA

The history of the NFPA 61 standard applicable to the grain handling industry shows it has constantly changed over the years. NFPA began setting standards for the industry in 1923 following serious explosions in terminal elevators, flour mills and feed grinding facilities that occurred from 1913-1920’s. The standard has been amended many times since then with four industry segments having their own standards, NFPA 61A for starch handling, NFPA 61 for grain elevator operations, NFPA 61 C for feed mills and NFPA 61 D for flour milling. NFPA 61B underwent a major change in 1969 when four other NFPA standards were combined with it to include; grain terminal standards, county elevator standards, a standard on suction and venting in grain elevators and a standard on dryers and dehydrators.

In 1980, following several serious grain dust explosions, the entire NFPA 61B standard was completely revised to be more comprehensive and address additional grain dust explosion concerns. In 1995, NFPA decided that a single standard was needed to replace the four existing standards: NFPA 61A, NFPA 61B, NFPA61C, and NFPA 61D. The resulting version is the Current NFPA 61 standard which is more complex since it incorporates many exceptions to some of the requirements because of difference in industry operations. This change made the industry standards more complex and difficult for users. Since 1995 three other editions have been issued in 1999, 2002 and 2008. If further combining is done with the NFPA 61 standard it will be less specific to our industry and will need more exceptions for consideration based on the wide range of dust properties and operations to be included. Users should have a standard that is specific to their industry and more user friendly. Otherwise no one will be able to use much of the standard without consulting with explosion experts who will have to be educated in the grain handling industry concerns and operations. This will lead to additional costs that don’t currently apply, in most cases, with little added benefit.

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3 Production data source: USDA’s National Agricultural Statistics Service.
NFPA 61, Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities

NFPA 61, Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities is the primary voluntary standard used for the grain handling industry. The industry has had participants from virtually every sector of industry (grain elevators, feed mills, soy processing, starch manufacturing, flour milling, and other types of mills) over the years serve on the committee to fine tune the recommendation of the standards to fit our operations. There has been a great effort by industry to have practical and workable standards. Results of the industry research projects have been shared and incorporated into the NFPA 61 standard for all the industry to view and use. Research on proper and effective ways to vent bucket elevators is one example; others include the role of static electricity and metal sparks in dust explosions and the need for proper selection, use and maintenance of bearings. Basic facility design elements, such as placing legs outside of facilities and use of safety monitoring devices, also have been shared through committee participation and NFPA 61 development.

Our Concerns About Any Combination of Combustible Dust Standards

We are concerned that a combining of the six combustible dust standards could place great regulatory and economic burden on our industry and potentially other industries. The following concerns are listed for your consideration:

- The current NFPA 61 standard has been carefully developed over the past 90 plus years and reflects the needs of the grain handling industry as is evident in the significant reduction of grain dust explosions, including a great reduction since 1980 following the significant explosions that occurred in the late 1970’s.

- Merging NFPA 61 with other combustible dust standards will provide little to no benefit to those that voluntarily apply the existing standards. A combined standard with aggregated provisions intended to cover a broader industry segment would result in more generic application which could be confusing to those companies that presently comply with the existing, industry-specific standards.

- Further, combining the NFPA 61 standard with other combustible dust standards will dilute the grain industry’s ability to address issues and concerns specific to our operations, construction and practices. As a result, this could have the effect of discouraging stakeholder participation in the standard making process and negate the collaborative efforts of the grain handlers to develop a practical and workable standard for the industry. The grain handling industry has had participants from virtually every sector of industry (grain elevators, feed mills, soy processing, starch manufacturing, flour milling, and other types of mills) over the years to fine tune the recommendation of the standards to fit our operations. Results of the industry research projects have been shared and incorporated into the NFPA 61 standard for all the industry to view and use. Research on proper and effective ways to vent bucket elevators is one example, others include the role of static electricity and metal sparks in dust explosions and the need for proper selection, use and
maintenance of bearings. Basic facility design elements such as placing legs outside of facilities and use of safety monitoring devices have also been shared through committee participation and NFPA 61 development.

- We do not consider it appropriate to combine our industry with others such as the metals or wood working or sulfur handling industry as each of them has vastly different equipment and hazards than our industry. Facility and operating practices differ and require different prevention solutions.

- There appears to be a general trend by those considering combining the standards to center the effort on the NFPA 652 combustible particulates. That standard is more generic and not specific to our industry’s needs and is more theoretical and difficult to apply. OSHA tested the impact of setting housekeeping levels at grain handling facilities to range from 1/16 inch to 1/8 inch throughout a facility and chose to establish a maximum level of 1/8 inch in priority areas of elevators (inside areas within 35 feet of a bucket elevator, fabric filter or hammermill operations). The economic impact of such a standard was hundreds of millions of dollars on just the grain elevator portion of the industry. The current dust accumulation level within the OSHA grain handling standard has greatly reduced explosion hazards and gives management a realistic limit to stay below.

- The Standards Council states they are considering combining all six standards to address criticisms of OSHA and others that all the standards are not consistent with one another. NFPA appears more concerned with satisfying regulatory concerns than the actual users of the standards. We believe that the consensus of the members of the industry that helped develop the standard should be NFPA’s primary concern. If standards become strictly a regulatory concern for OSHA and authorities having jurisdiction (AHJ), i.e. fire marshals, to enforce requirements, there will likely be an increasing reluctance by many from industry to participate in the standards as they will be contributing to greater regulation of their own industry at the risk of criticism by management and others in the industry.

- As you know, the NFPA has long had a well-deserved reputation as a consensus organization. The above-described action, however, both detracts from that reputation and provides a disincentive for responsible and knowledgeable persons to devote their time and resources to the drafting of NFPA standards. The above action also could be used to call into question whether NFPA standards continue to meet an important criterion of the definition of “national consensus standard” in the Occupational Safety and Health Act—“that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption[.]”\(^4\) If the Standards Council overrode consensus decisions by the members of technical committees, this criterion might not be thought to be

\(^4\) The Occupational Safety and Health Act defines a “national consensus standard” as a standard that “(1), has been adopted and promulgated by a nationally recognized standards-producing organization under procedures whereby it can be determined by [OSHA] that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption, (2) was formulated in a manner which afforded an opportunity for diverse views to be considered and (3) has been designated as such a standard by [OSHA], after consultation with other appropriate Federal agencies.
met, and the legal preference in section 6(b)(8) of OSHA’s statute\(^5\) for NFPA-drafted standards over OSHA-drafted standards would no longer apply. OSHA could also no longer maintain that the NFPA dust standards represent such a consensus.

- In terms of retroactivity concerns, NFPA standards are applicable to facilities that are constructed after the establishment of a particular standard. Therefore, most of the new provisions are not applicable to existing facilities. Government regulators often prefer to develop standards that can apply to everyone. If NFPA takes the regulator approach, then there will be less innovation in standard development because many of the new concepts cannot be applied to existing construction without great costs and design changes. Further, the standards will not be leading safety enhancement but rather lagging far behind until new concepts are shown to be practical and affordable. Thus, NFPA could stymie good standard development of recommended best practices by taking this path of combining standards.

- Finally, the NFPA 61 has done more than its fair share to be cooperative in working with the CC over the past two revision cycles to harmonize the existing NFPA 61 standard with NFPA 652. In fact, we have done far more than several of the other combustible dust standards. By combining the standards, the CC is simply ignoring the time and effort that many of its own members have put into 61. As previously mentioned, if the work of NFPA 61 over the past two revision cycles is ignored, then the NFPA discounts the value that its own members bring to the standard setting process that undermines the effort of developing voluntary consensus standards.

**Conclusion**

In 2011 representatives from NFPA 61 (Matt Bujewski, Jess McCluer and Jim Maness) attended the first exploratory meeting, at the NFPA office in Quincy, Mass., to combine all the combustible standards into one document. At the meeting it was noted that, “…of the total responses received, the grain handling segment of the agricultural dust project provided the greatest number of responses, and those responses were overwhelmingly against any action to combine or consolidate the documents, particularly any action that would impact NFPA 61. The combustible metals committee members were also not in favor of combination……” Since 2011 our members of NFPA 61 have been primarily concerned that a single combustible dust document is too complex for the industry users and the AHJs that deal with the everyday concerns of grain, feed, milling and processing facilities. After eight years we once again see that the NFPA has continued its objective to create a single standard to the extent of openly ignoring our concerns of this process.

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\(^5\) That section states: “Whenever a rule promulgated by the Secretary differs substantially from an existing national consensus standard, the Secretary shall, at the same time, publish in the Federal Register a statement of the reasons why the rule as adopted will better effectuate the purposes of this Act than the national consensus standard.”
NFPA 61 for the grain and food industry has the longest tested history of all the standards, as most others under consideration came much later. The current NFPA 654 standard (originally for chemical, plastics, dyes and pharmaceutical dust industries) came about in 1997 with the combining of many other standards to include all other industries not having a specific standard and producing combustible particulate solids. NFPA 654 is not tested or well used by the original industries it was intended for and thus should not be the catalyst to incorporate a well-developed specific industry standard such as those for the grain handling industry. The same also applies to NFPA 652 that was initially published in 2015.

Thus, we do not consider it appropriate that the NFPA combine our industry with others – such as the chemical, metals, wood working or sulfur handling industry – in assessing combustible dust-related incidents and potential recommendations. Each of those industries has vastly different equipment and hazards than ours. Facility and operating practices differ and require different prevention solutions. As a result, one size does not fit all because many new concepts and operational practices cannot be applied to existing construction without great costs and design changes that are not even necessary.

The undersigned organizations appreciate the opportunity to comment on the NFPA Standards Council request for input from the Correlating Committee on the merger of the NFPA’s six combustible dust processes. If you have any questions, please contact Jess McCluer, NGFA Vice President, Safety and Regulatory Affairs at (202) 888-1102 or jmccluer@ngfa.org. Thank you.

American Feed Industry Association
Corn Refiners Association
National Grain and Feed Association
National Oilseed Processors Association
North American Millers Association
U.S. Beet Sugar Association
Technical Committee on Wood and Cellulosic Materials Processing (NFPA 664)

Notes on Combustible Dust Document Consolidation, May 13, 2019

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Having information all in one document to reference</td>
<td>• How will sections that do not specifically apply to dust be handled?</td>
</tr>
<tr>
<td>• Could have an annex on DHAs that incorporates the examples used within all the current standards</td>
<td>• If sections that do not specifically apply to dust stay in a separate document (for example, stay in NFPA 664) it would get messy. Not easy for the users to use both documents-harder to find information</td>
</tr>
<tr>
<td>• Could clarify housekeeping thresholds</td>
<td>• Differences between fundamental requirements for different types of dusts-how would these be managed?</td>
</tr>
<tr>
<td>• Sometimes, if one standard is purchased it is NFPA 654 and it is misapplied to wood dust (they miss NFPA 664 altogether). This would reduce likelihood of that happening.</td>
<td>• Potential to effect legislation where NFPA 664 is adopted</td>
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<td></td>
<td>• Could lose some autonomy that the committee currently has</td>
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</table>

Notes:

• These items have not been voted on by the committee- they are a brainstorming list of individual’s thoughts and not consensus
• Each industry might have to have a separate fundamentals section that applies to their dust
• Informal poll on combining- 6 agree, 9 disagree, 1 abstain (based on current information)
<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Material being located in one standard improves ease of use, especially when crossing industries</td>
<td>• NFPA 484 2019 is 138 pages long. This will result in an extremely long combined document and make it hard to find applicable requirements</td>
</tr>
<tr>
<td>• Some of the chapters such as nanometals and additive manufacturing are coming up for other combustible dusts so it would be a benefit to have a broader perspective</td>
<td>• NFPA 484 covers molten metals and other combustible metals and situations which are not combustible dust- would these be in a separate standard or included in the general standard (which would then need a broader scope than just combustible dust)</td>
</tr>
<tr>
<td>• Having a fundamentals document/section will allow NFPA 484 to focus less on general requirements and more on specifics</td>
<td>• Need to be careful to maintain the autonomy/integrity of NFPA 484</td>
</tr>
<tr>
<td>• Having one document may increase adoption (federally)</td>
<td>• People who don’t have appreciation of combustible metal hazards making changes to the recommendations of combustible metals specialists/those with expertise in that area</td>
</tr>
<tr>
<td>• Currently, users may bypass NFPA 652 and go directly to their industry. If combined, it will be clearer that the fundamentals requirements apply</td>
<td>• Remove repetition between documents</td>
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</tbody>
</table>

**Notes:**

- This list is a brainstorming list of individual’s thoughts, and has not been voted on by the committee. (not consensus)
- Combined document title could be “Combustible dust and metals”
- Would need to clarify what material falls under each committee, and how to resolve conflicts
- Informal vote- in favor of combining
## Notes on Combustible Dust Document Consolidation, May 16, 2019

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• One source for all information</td>
<td>• Would need to work to make sure autonomy is maintained</td>
</tr>
<tr>
<td>• Past experience (NFPA 13) shows positive experience for users, enforcers, etc</td>
<td>• Some material in NFPA 655 does not strictly apply to combustible dust- where would that go- users would not look in combustible dust document to find those requirements</td>
</tr>
<tr>
<td>• Raise awareness of all types of combustible dust- currently, people might not know which document to go to</td>
<td>• Users may overlook commodity-specific requirements if they find a similar requirement in fundamentals section</td>
</tr>
<tr>
<td>• Would allow the committee to delete repetitive requirements (may reduce size of NFPA 654)</td>
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### Notes:

- Some committee members referenced positive experience with NFPA 13
- Might need to have working groups among the subcommittees
- Will have to determine which committees own which content sections (if repetitive between committees)
- If there are conflicts between committees- does correlating committee oversee, or is there a mechanism for resolving conflict between committees directly?
- This list is a brainstorming list of individual’s thoughts, and has not been voted on by the committee. (not consensus)
- Informal vote- in favor of combining
The December 2018 Standards Council Action (18-12-17) requested an update “on the status of efforts to merge all dust standard requirements currently within NFPA 61, 484, 652, 654, 655, and 664 into a single standard, namely NFPA 652 per the Council’s 2011 decision.” The Correlating Committee on Combustible Dusts would like to note that while the task group that met on January 5, 2011 was asked to consider consolidation of the combustible dust committees and documents (Action 10-8-36), the task group minutes reflect that placing the existing documents within a single cover would be the most difficult path forward, so that was not included as a recommendation from the group. Recommendations did include the formation of a Correlating Committee on Combustible Dusts and a Technical Committee on Fundamentals of Combustible Dusts.

In March 2011, the Standards Council approved the formation of a Correlating Committee and a Technical Committee (TC) on Fundamentals of Combustible Dusts, and voted to have the newly formed TC develop a document that shall provide the generally applicable requirements for managing the fire and explosion hazards of combustible dusts and combustible particulate solids (Action 11-3-24).

The Technical Committees have made great progress on this effort. Two editions of the fundamentals document, NFPA 652, have been published, and upon publication of the 2020 editions, NFPA 61, NFPA 654, NFPA 664 have all been reorganized so that they align with the layout of NFPA 652. It is expected that NFPA 484 will complete this with the 2022 edition. One benefit of reorganization is that users can find related requirements in the same location across documents.

Now that these two committees have been formed, and all committees involved have been working for several revision cycles to align the documents, a majority of Correlating Committee members have agreed that merging the documents can be considered, but it would be important to identify any potential implications first. Before beginning the merge into a new document, it is important to consider the users who would be affected by this change, and ensure that it would simplify the use of the standards as intended.

The plan moving forward is to have each Technical Committee meet by conference call to develop lists of pros and cons specific to their industry prior to May 20, 2019. In the interim, NFPA staff and the Correlating Committee chair will gather information on how other documents, such as NFPA 30, NFPA 85, and NFPA 13, have undergone similar merges. The Correlating Committee is meeting May 21-22, 2019 to review the Second Drafts of NFPA 61, 91, and 664 and at that time will also consider the information gathered on this topic. If it is determined that the benefit of this merge would outweigh any negative impacts on the users, then a timeline will be developed for presentation to the Standards Council at their August 5-7, 2019 meeting.
TO: Combustible Dust Correlating Committee

FROM: Linda Fuller

DATE: December 21, 2018

SUBJECT: Merger of Dust Standards

I am transmitting to you herewith the following action of the Standards Council (December 6-7, 2018):

The Standards Council reviewed the 2011 decision to direct creation of a Correlating Committee on Combustible Dusts and a new document on combustible dust fundamentals, NFPA 652. Now that NFPA 652 has been developed, issued, and the Correlating Committee has overseen revisions of the preexisting commodity-specific dust standards, the Council requests an update at the April 2019 Council meeting by the Correlating Committee on the status of efforts to merge all dust standard requirements currently within NFPA 61, 484, 652, 654, 655, and 664 into a single standard, namely NFPA 652 per the Council’s 2011 decision. The Correlating Committee update is to include a plan of action and timeline for accomplishing the Council’s directive. The Committees subject to this project will continue to function the same once a single standard exists; however, the work of the distinct committees will be chapters rather than multiple, separate standards.

c: L. Hartman, L. Moreno
TC Agricultural Dusts (CMD-AGR)
TC Combustible Metals and Metal Dusts (CMD-CMM)
TC Fundamentals of Combustible Dusts (CMD-FUN)
TC Handling and Conveying of Dusts, Vapors, and Gases (CMD-HAP)
TC Wood and Cellulosic Materials Processing (CMD-WOO)
Dust Project

Standards Council took action in 2011 to direct that the Correlating Committee on Combustible Dusts work to create a single dust standard that leverages NFPA 652 while preserving the unique requirements from commodity specific documents as chapters within that single standard. Staff will provide an update to Council on the progress of the Correlating Committee and various Technical Committee actions towards the Council’s directive.
1. Chair Jim Milke opened the meeting at 8:10 a.m., Wednesday, January 5, 2011 at the Hilton Garden Inn, Linthicum, MD and welcomed the attendees. Members were asked to conduct self-introductions including an overview of their work with combustible dust hazard processes through their jobs as well as service on NFPA committees.

In the Chair’s opening remarks, he stated that he came to the meeting with no preconceived concept for an outcome; instead he encouraged an open discussion of the topic so that all could gain perspective of the various industry segments on the issue and better understand what NFPA standards currently exist and how those documents came to where they are at present. From these discussions, the Chair indicated that he hoped some strategy for combination or consolidation of the documents would emerge. In addition, he stated that this meeting could be the only meeting needed or could be the beginning of an ongoing process involving the group.
To begin the meeting, members requested a review of the steps taken by NFPA that led to this meeting. Such background was viewed as an important piece in understanding what the goal was for the meeting. Guy Colonna provided a review of the staff action that began in earnest with the OSHA publication in October 2009 of the Advanced Notice of Proposed Rulemaking (ANPRM) for combustible dusts and the subsequent stakeholder meetings. He noted that a similar proposal was made following the June 2005 public meeting conducted by the Chemical Safety Board but no action was taken from that earlier suggestion. This time, with OSHA moving in response to the CSB urgent recommendations, commentary in the ANPRM suggested that relying on the NFPA standards might not be appropriate action by OSHA as the standards are hard to use, confusing, and because of multiple documents, not easy to know which one to use or you might find inconsistent requirements between documents. Specific commentary from the ANPRM on page 54339 indicates these points, “The 2006 edition of NFPA 654 mandates compliance with 36 other NFPA standards. These 36 secondary references, in turn, reference additional standards. In effect, no one standard comprehensively addresses the hazards of combustible dust, which may pose difficulties for some employers trying to develop programs to mitigate combustible dust hazards. In addition, the provisions of these five NFPA standards differ, which may add to these difficulties. Some elements of protection are addressed in some standards, but not in others; other elements are addressed in different ways in the various standards.”

With that view of the NFPA standards, NFPA believed that our response should be to place the codes and standards in the strongest position for adoption and widest use and those comments in the OSHA ANPRM worked against that outcome. After discussion among NFPA management, Mr. Colonna prepared an agenda item for the Standards Council to be considered as part of the March 2010 agenda (see attached). That item highlighted the issues, discussed possible steps to take within the standards making system, and requested the Council gather input from the membership and public regarding possible consolidation of the combustible dust project documents. The Council agreed with the issues raised and supported the approach, which called for a request to the membership for input and comment. That request was distributed and comments were due by mid-June in time for the August Council meeting.

The Chairs of the respective committees attending the meeting reviewed the responses provided by their committees. Of the total responses received, the grain handling segment of the agricultural dust project provided the greatest number of responses, and those responses were overwhelmingly against any action to combine or consolidate the documents, particularly any action that would impact NFPA 61. The combustible metals committee members were also not in favor of combination citing the unique reactivity hazards presented by many of the combustible metals. NFPA 484 members also noted that the standard addresses combustible metals that are not in the form of dust, and, therefore, any action taken to consolidate the standards would need to address that aspect of combustible metals. Those in the wood working and furniture sector were less strongly against the possible combination but noted that within NFPA 664, there are non-dust requirements addressed by the standard that should not be lost if consolidation or combination occurred. NFPA 654 is more unique when compared to the other documents
in that it is not strictly linked to a specific dust commodity type (i.e., grain or agricultural product, metal, or wood) and thus its membership believes that combination or consolidation would be a good approach.

As part of this discussion, participants inquired about examples of specific areas of inconsistency between documents or conflicts between documents. Staff noted some examples of topics not universally covered by all 5 standards – those include, process hazard analysis or hazard analysis; specification of a threshold dust accumulation (layer or mass) that would trigger housekeeping and other control measures; and provisions for returning exhaust air from dust collectors to the facility without introducing uncontrolled hazards. Several of the documents have these topics addressed in some manner, but no single approach exists at present. As part of the discussion of these examples of “inconsistency”, members of the group noted that in some cases, unique aspects of the dust type make it necessary not to include such provisions. All agreed that a collective effort such as that represented by this task group meeting, could serve to identify those areas and aid in determining whether they are inconsistent due to past practice or have specific reasons for having different requirements that may appear to be inconsistent. The attention from this task group could ensure that in the future, where different requirements are essential due to unique processes or hazards, the reasons behind the different requirements are documented (such as in expanded annex material) so that users better understand the logic, reason, or intent for specific requirements that may be different from those requirements contained in the proposed new general dust standard. The objective for this new general dust standard is to serve as a road map for the dust standards and guide the user from the general standard to the specific, when necessary.

4. With that point of agreement, the members offered that with a coordination mechanism in place, it could be possible to develop a dust hazard only document that could serve to direct the user from the general dust hazard identification, evaluation, and control stage to the existing dust specific documents. This notion stems from the point in the OSHA commentary that the NFPA documents are difficult to use because you don’t know which one to use. This new document could provide that road map through the standards by starting with the fundamental dust hazard analysis. The members agreed that the first step in this process is the creation of a Technical Correlating Committee (TCC) to provide the coordination mechanism between the existing dust committees. The consensus reached favored creating the new committee with the expectation that a standard would be developed as that would provide mandatory language pertaining to the general or fundamental dust hazard assessment requirements. The consensus formed around the TCC structure and the addition of a new Technical Committee (TC) that would be responsible for developing the general standard for combustible dusts and that would direct the user to the appropriate occupancy standard for the dust-type specific occupancy.

Considerable discussion centered on two issues at this point – what type of document should the new document be (code, standard, recommended, or guide) and how the four existing Technical Committees and their standards should be organized within the TCC structure. The consensus reached favored creating the new committee with the expectation that a standard would be developed as that would provide mandatory language pertaining to the general or fundamental dust hazard assessment requirements. On the subject of how the existing committees and documents should function within the
new structure, some members favored placing all five existing documents within a single cover to be included with the new general/fundamental dust hazard assessment requirements. Though this might be the best direction given the comments in the OSHA ANPRM, it was agreed to be the most difficult path and possibly not succeed. The members recognized that possibility and recommended the creation of the new TC and a TCC that would coordinate the work of five committees and 6 documents. Members understood that, in time, content included in the new standard might necessitate content from the existing five dust standards being removed or extracted from the new standard. All agreed that this incremental step offered a greater possibility for success than any plan involving scrapping all the existing committees and documents.

5. With agreement on a path forward – formation of a TCC and new TC and development of a new standard – the task group proposed a startup roster for the TCC:

- Matt Bujewski, SE
- John Cholin, SE
- Greg Creswell, M
- Walt Frank, SE
- Kevin Kreitman, E
- James Maness, U
- Arthur Mattos, I
- William Stevenson, M

6. The task group also developed a proposed title for the new standard, a draft committee scope, and a draft document scope with additional Chapter 1 content and a draft table of contents (draft table of contents appears at the end of the minutes as an attachment). Title, committee scope and document scope with application and purpose are shown below:

**Title** – Standard on Combustible Dusts

**Committee scope** – This Committee shall have primary responsibility for documents on the management of hazards from combustible dusts and combustible particulate solids.

**Chapter 1 Administrative**

1.1 **Scope.** This standard shall provide the generally applicable requirements for managing the fire and explosion hazards of combustible dusts and combustible particulate solids.

1.2 **Purpose.** This standard provides the user with general requirements and directs the user to the appropriate industry or commodity-specific standard.

1.3 **Application.** This standard is intended to be used in conjunction with the following industry or commodity-specific standards (list NFPA 61, 484, 654, 655, 664).

1.3.1 Prescriptive requirements found in the specific industry or commodity-specific standards shall take precedence over the general requirements contained in this standard.

1.3.2 If an industry or commodity-specific standard does not exist, then the requirements in this standard shall apply.
1.4 Include section 1.4 from NFPA 654 regarding non-applicability (NFPA 30B, 85, 120, 400, 495, 1124, and 1125)

7. In summary, the task group freely discussed key issues pertaining to the suggestion by NFPA through the Standards Council that the NFPA combustible dust hazard committees and documents be consolidated or combined. Though the Council received input in response to its request for comment on this possibility, the task group was established to further consider the issues and determine whether a path forward could be identified. The members listened to the issues and offered comment on the various aspects and have proposed a strategy that begins the process. The key elements to the proposed strategy are:

   a. Establish Technical Correlating Committee (TCC) to oversee work of 4 existing combustible dust committees and proposed new committee.
   b. Establish new Technical Committee (TC) with scope permitting it to develop documents on management of hazards from combustible dusts and combustible particulate solids. Committee to develop new Standard on Combustible Dusts (possible number could be NFPA 60 or possibly in 65x series).
   c. Startup roster for TCC provided to Council for March 2011 meeting.
   d. With Council approval, call for new members to new Combustible Dust committee.
   e. Possible timing – August 2011 startup roster for new committee, possibly enter revision cycle with new document for F2013 cycle, meaning January 2012 notice of intent to enter cycle. This timing synchronizes well with existing dust standards.
   f. The task group noted one key point – regardless of the Council’s decision on the proposed formation of a new TC and new standard, the task group believes it is essential that the Council establish the TCC as proposed.

8. The Chair thanked the task group for their excellent work and complimented them on what they have delivered as an outcome from the meeting. The meeting was adjourned at 3:15 p.m. on Wednesday, January 5, 2011.

Respectfully submitted,

Guy R. Colonna
NFPA Staff

Attachment:
(1) Agenda item for March 2010 Standards Council meeting
(2) Draft Table of Contents for proposed new dust standard
M E M O R A N D U M

TO: Secretary, Standards Council

FROM: Guy R. Colonna, Staff Liaison

DATE: February 11, 2010

SUBJ: Combustible Dust Project – Consolidation of Committees and Documents

At the request of the Vice President, Codes and Standards Operations, I convened a meeting on January 25, 2010 for the purpose of considering whether NFPA should restructure the current committees and documents that form the core of NFPA’s requirements applicable to combustible dust hazard process fire and life safety.

NFPA currently has five specific standards that address safeguards for various dust specific processes and hazards. These documents are:

NFPA 61, Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities
NFPA 484, Standard for Combustible Metals
NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids
NFPA 655, Standard for the Prevention of Sulfur Fires and Explosions
NFPA 664, Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities

These five documents are developed by four technical committees (NFPA 654 and 655 are developed by the same committee). Though there are unique requirements needed for some of the dusts, much of the content of these documents follows a basic approach to the fire and explosion hazard posed by combustible dusts. This approach includes hazard recognition (characterization of the specific dust and its combustibility and explosibility properties), hazard assessment (how is the dust created and released), hazard evaluation (how frequently does the dust that is generated accumulate to unsafe levels), and hazard control (ignition source identification and elimination, capture and collection of the dust so it cannot be released, housekeeping, isolate upstream and downstream equipment and structures, deflagration venting, training).

As a result of recent incidents, some receiving national attention, investigations by the U.S. Chemical Safety Board and OSHA have highlighted NFPA’s standards as forming the only source for comprehensive coverage of the fire and explosion hazards from combustible dusts. A common factor cited as contributing to these incidents is a lack of awareness of the dangers posed by combustible dusts when they are suspended in air at the Minimum Explosible Concentration (MEC) in the presence of a viable ignition source. At the end of 2009, OSHA announced that it would initiate a regulatory development project. In their Advanced Notice of
Proposed Rulemaking (ANPR), OSHA acknowledged that one option for the regulation would be to include the NFPA standards directly as part of the regulation – incorporate them directly by reference – rather than develop a separate regulatory approach. In the background to this ANPR, OSHA noted that inconsistent requirements exist between some of the NFPA standards and these inconsistencies limit the effectiveness of their use.

At the present time, correlation between the documents is being handled through cross membership on the four committees. Though this approach has brought some consistency between NFPA 654 and 664, it would likely be a slow process to achieve overall correlation between the five standards. A more effective strategy would be to restructure the four existing committees into a Technical Correlating Committee supporting several Technical Committees.

I have initially contacted the Chairs of the four committees to inform them of the initial discussions related to their committees and documents – three responded, so far. One chair supports the concept; another encourages NFPA to develop a plan and offers to assist in the process; while the third responding chair is not in favor of the concept at this time.

I would like to request that the Standards Council publish a request for information regarding this plan to restructure and reorganize the NFPA combustible dust hazard process committees into a single committee with the goal of consolidating the requirements of the five current standards into a single document.

I propose to have a straw man for the new committee structure (Correlating Committee and Committee) and an outline for the consolidated document to provide the Council at its August meeting pending the action of the Council at the March meeting. If the Council approves this request, I have attached a series of questions that might be used to organize the responses to the Council’s request for information.

cc: C. Dubay
    P. Crossman
    L. Fuller
    D. Beach
    M. Curtis

Attachment
As a result of recent incidents, some receiving national attention, investigations by the U.S. Chemical Safety Board and OSHA have highlighted NFPA’s standards as forming the only source for comprehensive coverage of the fire and explosion hazards from combustible dusts. A common factor cited as contributing to these incidents is a lack of awareness of the dangers posed by combustible dusts when they are suspended in air at the Minimum Explosible Concentration (MEC) in the presence of a viable ignition source. At the end of 2009, OSHA announced that it would initiate a regulatory development project. In their Advanced Notice of Proposed Rulemaking (ANPR), OSHA acknowledged that one option for the regulation would be to include the NFPA standards directly as part of the regulation – incorporate them directly by reference – rather than develop a separate regulatory approach. In the background to this ANPR, OSHA noted that inconsistent requirements exist between some of the NFPA standards and these inconsistencies limit the effectiveness of their use.

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To that end, the Council seeks input from the membership and public on the concept of combining NFPA’s five combustible dust hazard process standards into a single standard under a revised committee structure. To assist with your responses, the following questions are provided:

1. Are you currently involved in the combustible dust hazard process industry?

   If yes, in what sector?

   Manufacturer in process involving storing, handling or using combustible particulate solids or dusts

   Equipment manufacturer/vendor for pneumatic conveying, air material separators, dust collectors, air moving devices

   Equipment manufacturer/vendor for control systems – suppression, isolation, deflagration venting

   Testing laboratory or research

   Consulting engineer

   Insurance
Enforcer or authority having jurisdiction in jurisdiction with industrial dust hazard processes

Other

2. Do you currently use one or more of the NFPA combustible dust standards?

If yes, which one(s)? 61  484  654  655  664

3. OSHA has suggested that as currently structured NFPA’s multiple documents on combustible dust hazard protection provide requirements that are inconsistent between dust types or possibly conflict. Do you agree with that assessment? Can you provide specific examples?

4. Should NFPA combine the current five combustible dust standards into a single document that is developed under the control of a technical correlating committee?

5. Are there other methods for achieving correlation and consistency between the documents? Please identify specific methods, if the answer is yes.

6. Are there advantages gained by having a single combustible dust standard? Please identify specific advantages, if the answer is yes.

7. Are there any disadvantages that combining the documents into a single standard would present? Please describe any.

8. Do you currently serve on or have you previously served on one or more of these current committees?
Draft Table of Contents for Proposed NFPA Standard on Combustible Dusts

Administrative
References
Definitions
Hazard Analysis
Management of Change
Housekeeping
Performance-based
Procedures and Training
Inspection, Testing and Maintenance
Design – facility and processes
Ignition prevention
Dust capture and collection – fugitive dust
Emergency preparedness
Incident investigation
Material testing
Explosion prevention options
Principles
Pneumatic conveying
Fire protection
Contractors
At the March 2010 meeting, the Council acted on a request from NFPA staff on the possibility of restructuring the current committees and documents that form the core of NFPA’s requirements applicable to combustible dust hazards. The Council voted to publish a notice to solicit comments from committee members and the public regarding restructuring the current committees and combining the dust documents. (See Minute Item 10-3-19)

At its August 2010 meeting, the Council reviewed the comments received from the Committee members and the public on restructuring the current committees and combining the dust documents. After review of all the information before it, the Council found that the reasons and the rationale for combining the committees and documents were persuasive, and the Council voted that a task group be formed to further consider the issues and determine a path forward. This task group was chaired by Standards Council Member Jim Milke and consisted of the chairs of the respective committees, and also included a few additional members from each committee. (See Minute Item 10-8-36)

At the March 2011 Council meeting, the Chair of the Task Group reported to the Council. The recommendations of the Task Group Report to the Council are as follows:

a. Establish Technical Correlating Committee (TCC) to oversee work of 4 existing combustible dust committees and proposed new committee.
b. Establish new Technical Committee (TC) with scope permitting it to develop documents on management of hazards from combustible dusts and combustible particulate solids. This new Committee would develop a new Standard on Combustible Dusts (possible number could be NFPA 60 or possibly in 65x series).
c. Startup roster for TCC provided to Council for March 2011 meeting.
d. With Council approval, call for new members to new Combustible Dust committee.
e. Possible timing – August 2011 startup roster for new committee, possibly enter revision cycle with new document for F2013 cycle, with a January 2012 notice of intent to enter cycle. This timing synchronizes well with existing dust standards.
f. The task group noted one key point – regardless of the Council’s decision on the proposed formation of a new TC and new standard, the task group believes it is essential that the Council establish the TCC as proposed.

After a review of all of the information before it, the Council voted to agree in principle with the recommendations of the Task Group and has determined that a Technical Correlating Committee (TCC) and a Technical Committee (TC) on Fundamentals should be formed and a notice published soliciting those interested in participating on the TCC and TC. Once the TCC is formed, the Council requests that the TCC provide a TCC and TC scope for the Council’s review. The Council has also voted to have the newly formed TC develop a document that shall provide the generally applicable
requirements for managing the fire and explosion hazards of combustible dusts and combustible particulate solids. This standard shall provide the user with general requirements and directs the user to the appropriate industry or commodity-specific standard.

The Combustible Dust Task Group was discharged by the Council with thanks.

**SC No. 10-8-36**

The Council reviewed the request of the NFPA Staff Liaison on the possibility of consolidating and combining the four combustible dust committees and five documents. After review of all the information before it, the Council believes that the reasons and the rationale for combining the committees and documents appear to be compelling and the Council has voted that a task group be formed. This task group will be appointed and chaired by Standards Council Member Jim Milke and shall consist of the chairs of the respective committees and may also include a few additional members from each committee. The task group shall meet to develop recommendations and a plan for a path forward on consolidation of the combustible dust committees and documents. The task group shall report back to the Council with those findings at the Council’s October 2010 meeting.

**SC No. 10-3-19**

The Council reviewed the request of NFPA Staff to combine NFPA 61, NFPA 484, NFPA 654, NFPA 655, and NFPA 664 into a single document. After review of all the material before them, the Council voted to publish a notice seeking input on the proposed combination of the documents into a single document.
MEMORANDUM

TO: Technical Committee on Fire Fighter Professional Qualifications
FROM: Jenny Depew, Technical Committee Administrator
DATE: July 15, 2019
SUBJECT: Informational Ballot on TC Scope - Final Results

According to the final ballot results, the recommendation to revise the scope of the Technical Committee on Fire Fighter Professional Qualifications HAS received the necessary affirmative votes to pass ballot.

22 Members Eligible to Vote
4 Members Not Returned (Henderson, Ozog, Rickel, Smith)

An affirmative vote of at least a simple majority of the total membership eligible to vote is required to pass ballot.

Please see the attached report for the results, including any comments received.
I agree with the task group recommendation to revise the scope of the Technical Committee on Fire Fighter Professional Qualifications as follows: “This Committee shall have primary responsibility for documents on professional qualifications required of fire fighters and fire service support personnel.”

Eligible to Vote: 22  
Not Returned: 4  
Henderson, Ozog, Rickel, Smith

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<tr>
<th>Vote Selection</th>
<th>Votes</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>AGREE</strong></td>
<td>15</td>
<td></td>
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<tr>
<td>Alec Feldman</td>
<td></td>
<td>Agree</td>
</tr>
<tr>
<td>F. Patrick Marlatt</td>
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<td>Agree</td>
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<tr>
<td>Michael M. Athey</td>
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<td>Agree</td>
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<tr>
<td>Kenn Fontenot</td>
<td></td>
<td>Scope of standard needs to expand the new language.</td>
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<tr>
<td>J. T. Collier</td>
<td></td>
<td>I agree.</td>
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<tr>
<td>John T. Wade</td>
<td></td>
<td>Agree with the caveat that once we open this can of worms, we may have to consider basic JPRs for volunteers, since the bulk of support persons likely are working with volunteer/combo depts.</td>
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<tr>
<td>Jimmy VanCleve</td>
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<td>agree</td>
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<tr>
<td>Jim Jobusch</td>
<td></td>
<td>Agree</td>
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<tr>
<td>Craig L. Hannan</td>
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<td>Agree.</td>
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<tr>
<td>John S. Cunningham</td>
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<td>Agree</td>
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<tr>
<td>Christina Spoons</td>
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<td>agree</td>
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<tr>
<td>Dudley H. A. Wright, II</td>
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<td>Agree</td>
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<tr>
<td>Bob Allen</td>
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<td>agree</td>
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<tr>
<td>Tina Takahashi</td>
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<td>Agree</td>
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<tr>
<td>Michael Caviness</td>
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<td>Agree</td>
</tr>
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| **DISAGREE**   | 3     |          |
| Adam C. Ballard|       | I believe that the addition of fire support personnel to the scope of Technical Committee on Fire Fighter Professional Qualifications is not in the best interest of the standard. The scope should remain focused on the JPR’s required for the core competencies as it pertains to traditional Firefighter qualifications. Adding non traditional support personnel takes away from the standards intent. |
| Richard L. Best|       | There is no clear definition of what “Support Personnel” means. Support Personnel can be regulated at the department level. |
| Sara G. Garcia |       | Support services are better suited under AHJ SOPs and SOGs. |

| **ABSTAIN**    | 0     |          |