<p>| 13-8-1 | 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 1, 2013 and an effective date of August 21, 2013, as acted on at the Association Meeting, with six amendments as follows: |
| 13-8-1-a | Amendment No. 25-1 (CAM 25-4): Accept an Identifiable Part of Proposal 25-47. <strong>(FAILED TC ballot)</strong> See Attachment 13-8-1-a |
| 13-8-1-a-1 | <strong>APPEAL</strong> Appeal of K. Isman of National Fire Sprinkler Association, requesting the Council uphold the Association Action to Accept an Identifiable part of Proposal 25-47. This motion (CAM 25-4) passed on the floor of the Association Meeting but failed TC ballot. <strong>See SA 13-8-1-a-1</strong> ADDITION |
| 13-8-1-a-1-a | Comment received by W. Koffel, Chair of the Inspection, Testing, and Maintenance of Water-Based Systems Committee on the appeal by K. Isman. (CAM 25-4) <strong>See SA 13-8-1-a-1-a</strong> ADDITION |
| 13-8-1-a-2 | Two comments received on the Appeal filed by K. Isman in support of the Appeal. <strong>See SA 13-8-1-a-2</strong> ADDITION |
| 13-8-1-b | Amendment No. 25-2 (CAM 25-5): Accept Comment 25-32. <strong>(FAILED TC ballot)</strong> See Attachment 13-8-1-b |
| 13-8-1-b-1 | <strong>APPEAL</strong> Appeal of K. Isman of National Fire Sprinkler Association, requesting the Council uphold the Association Action to Accept Comment 25-32. This motion (CAM 25-5) passed on the floor of the Association Meeting but failed TC ballot. <strong>See SA 13-8-1-b-1</strong> ADDITION |
| 13-8-1-b-1-a | Comment received by W. Koffel, Chair of the Inspection, Testing, and Maintenance of Water-Based Systems Committee on the appeal by K. Isman. (CAM 25-5) <strong>See SA 13-8-1-b-1-a</strong> ADDITION |
| 13-8-1-b-2 | One comment received on the Appeal filed by K. Isman in support of the Appeal. <strong>See SA 13-8-1-b-2</strong> ADDITION |
| 13-8-1-c | Amendment No. 25-3 (CAM 25-7): Accept Comment 25-34. <strong>(FAILED TC ballot)</strong> See Attachment 13-8-1-c |
| 13-8-1-c-1 | <strong>APPEAL</strong> Appeal of K. Isman of National Fire Sprinkler Association, requesting the Council uphold the Association Action to Accept Comment 25-34. This motion (CAM 25-7) passed on the floor of the Association Meeting but failed TC ballot. <strong>See SA 13-8-1-c-1</strong> ADDITION |
| 13-8-1-c-1-a | Comment received by W. Koffel, Chair of the Inspection, Testing, and Maintenance of Water-Based Systems Committee on the appeal by K. Isman. (CAM 25-7) <strong>See SA 13-8-1-c-1-a</strong> ADDITION |
| 13-8-1-c-2 | One comment received on the Appeal filed by K. Isman in support of the Appeal. <strong>See SA 13-8-1-c-2</strong> ADDITION |
| 13-8-1-d | Amendment No. 25-4 (CAM 25-9): Accept Comment 25-44. <em>(FAILED TC ballot)</em> See Attachment 13-8-1-d |
| 13-8-1-d-1 | <strong>APPEAL</strong> Appeal of K. Isman of National Fire Sprinkler Association, requesting the Council uphold the Association Action to Accept Comment 25-44. This motion (CAM 25-9) passed on the floor of the Association Meeting but failed TC ballot. See SA 13-8-1-d-1 |
| 13-8-1-d-1-a | Comment received by W. Koffel, Chair of the Inspection, Testing, and Maintenance of Water-Based Systems Committee on the appeal by K. Isman. <em>(CAM 25-9)</em> See SA 13-8-1-d-1-a |
| 13-8-1-e | Amendment No. 25-5 (CAM 25-17): Accept Comment 25-99. <em>(FAILED TC ballot)</em> See Attachment 13-8-1-e |
| 13-8-1-e-1 | <strong>APPEAL</strong> Appeal of K. Isman of National Fire Sprinkler Association, requesting the Council uphold the Association Action to Accept Comment 25-99. This motion (CAM 25-17) passed on the floor of the Association Meeting but failed TC ballot. See SA 13-8-1-e-1 |
| 13-8-1-e-1-a | Informational ballot on CAM 25-17 See SA 13-8-1-e-1-a |
| 13-8-1-f | Amendment No. 25-6 (CAM 25-19): Accept Comment 25-107. <em>(FAILED TC ballot)</em> See Attachment 13-8-1-f |
| 13-8-1-f-1 | <strong>APPEAL</strong> Appeal of K. Isman of National Fire Sprinkler Association, requesting the Council uphold the Association Action to Accept Comment 25-107. This motion (CAM 25-19) passed on the floor of the Association Meeting but failed TC ballot. See SA 13-8-1-f-1 |
| 13-8-1-f-1-a | Comment received by W. Koffel, Chair of the Inspection, Testing, and Maintenance of Water-Based Systems Committee on the appeal by K. Isman. SA 13-8-1-f-1-a |
| 13-8-1-g | | |
| 13-8-1-g-1 | | |
| 13-8-1-g-1-a | | |
| 13-8-1-g-1-b | | |
| 13-8-1-h | | |
| 13-8-2 | Act on the issuance of NFPA 58, <em>Liquefied Petroleum Gas Code</em>, with an issuance date of August 1, 2013 and an effective date of August 21, 2013, as acted on at the Association Meeting, with two amendments as follows: |</p>
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<td>13-8-3-g-2</td>
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Comment 12-60. This motion (CAM 70-21) passed on the floor of the Association Meeting but failed TC ballot.  See SA 13-8-3-g-2 ADDITION

13-8-3-g-2-a Comment received by T. Croushore, Chair of NEC Panel 12, on the appeal by T. Wysocki. (CAM 70-21).  See SA 13-3-g-2-a ADDITION

13-8-3-g-2-b One comment received on the Appeals filed by S. McCluer and S. Kaufman in support of the Appeals.  See SA 13-8-3-g-2-b ADDITION

13-8-3-g-3 Appeal of S. Kaufman representing The Society of the Plastics Industry, requesting the Council accept Proposal 12-129 and revert back to ROP text. A motion (CAM 70-21) passed on the floor of the Association Meeting but failed TC ballot to accept Proposal 12-129 and Comment 12-60.  See SA 13-8-3-g-3 ADDITION

13-8-3-h Amendment No. 70-6 (CAM 70-22): Accept Comment 12-65. (PASSED TCC ballot PASSED Panel ballot) See SA 13-8-3-h

13-8-3-i Amendment No. 70-7 (CAMs 70-25 and 70-26): Related Motions to accept Comments 13-46 and 13-54. (PASSED TCC ballot FAILED Panel ballot) See Attachment 13-8-3-i See SA 13-8-3-i

13-8-3-i-1 APPEAL Appeal of J. Conrad of RSCC Wire & Cable LLC, requesting the Council overturn the Association action on CAMs 70-25 and 70-26; and reject Comments 3-46 and 13-54, this related motion passed on the floor of the Association Meeting. See Attachment 13-8-3-i-1

13-8-3-j Amendment No. 70-8 (CAMs 70-27 and 70-28): Related Motions to accept Comments 13-59 and 13-62. (PASSED TCC ballot FAILED Panel ballot) See Attachment 13-8-3-j See SA 13-8-3-j

13-8-3-j-1 APPEAL Appeal of J. Conrad of RSCC Wire & Cable LLC, requesting the Council overturn the Association action on CAMs 70-27 and 70-28; and reject Comments 13-59 and 13-62, this related motion passed on the floor of the Association Meeting. See Attachment 13-8-3-j-1

13-8-3-k Amendment No. 70-9 (CAM 70-29): Accept Comment 13-76. PASSED TCC ballot FAILED Panel ballot) See Attachment 13-8-3-k See SA 13-8-3-k

13-8-3-k-1 APPEAL Appeal of J. Conrad of RSCC Wire & Cable LLC, requesting the Council overturn the Association action on CAM 70-29 and reject Comment 13-76, this motion passed on the floor of the Association Meeting. See Attachment 13-8-3-k-1

13-8-3-l Amendment No. 70-10 (CAM 70-31 and 70-32): Related Motions to accept Comments 13-101 and 13-102. (PASSED TCC ballot FAILED Panel ballot) See Attachment 13-8-3-l See SA 13-8-3-l

13-8-3-l-1 APPEAL Appeal of J. Conrad of RSCC Wire & Cable LLC, requesting the Council overturn the Association action on CAM 70-31 and 70-32; and reject Comments 13-101 and 12-102, this related motion passed on the floor of the Association Meeting. See Attachment 13-8-3-l-1

13-8-3-m APPEAL Appeal of D. Wechsler of the American Chemistry Council, requesting the Council overturn the Association action, and accept an Identifiable Part of Comment 14-56. This motion (CAM 70-36) failed on the floor of the Association Meeting. See Attachment 13-8-3-m See SA 13-8-3-m

13-8-3-m-1 Comment received by R. Jones, Chair of Code Making Panel 14 on CAM 70-36 Appeal. See Attachment 13-8-3-m-1
| 13-8-3-m-2 | Comments received by outgoing Chair J. Stallcup and incoming Chair W. Fiske of the Electrical Safety in the Workplace Committee on the appeal by D. Wechsler. (CAM 70-36) | **See SA 13-8-3-m-2** ADDITION |
| 13-8-3-n | Amendment No. 70-11 (CAM 70-37): Accept Proposal 15-62 as modified by Panel. (PASSED TCC ballot PASSED Panel ballot) See Attachment 13-8-3-n | **See SA 13-8-3-n** |
| 13-8-3-o | **APPEAL** Appeal of W. Vernon of Mazzetti Engineers, requesting the Council overturn the NEC Panel 15 action and reject Proposal 15-64 which would return 517.30(E) to previous edition text. No public comment was received on Proposal 15-64 resulting in the only person eligible to file a NITMAM would have been the submitter. See Attachment 13-8-3-o |
| 13-8-4 | Act on the issuance of NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, with an issuance date of August 1, 2013 and an effective date of August 21, 2013, as acted on at the Association Meeting, with one amendment as follows: |
| 13-8-4-a | Amendment No. 96-1 (CAM 96-3): Reject Comment 96-8. (PASSED TC ballot) See Attachment 13-8-4-a |
| 13-8-5 | Act on the issuance of NFPA 130, *Standard for Fixed Guideway Transit and Passenger Rail Systems*, with an issuance date of August 1, 2013 and an effective date of August 21, 2013, as acted on at the Association Meeting, with one amendment as follows: |
| 13-8-5-a | Amendment No. 130-1 (CAM 130-1): Return a portion of a Report in the form of an Identifiable part of Proposal 130-115 and related Comment 130-1. (PASSED TC ballot) See Attachment 13-8-5-a |
| 13-8-5-b | **APPEAL** Appeal of A. Ramirez of Underwriters Laboratories requesting the Council overturn the Association Action and Reject an Identifiable Part of Comment 130-165. This motion (CAM 130-2) failed on the floor of the Association Meeting. See Attachment 13-8-5-b |
| 13-8-6 | Act on the issuance of NFPA 502, *Standard for Road Tunnels, Bridges, and Other Limited Access Highways*, with an issuance date of August 1, 2013 and an effective date of August 21, 2013, as acted on at the Association Meeting, with one amendment as follows: |
| 13-8-6-a | Amendment No. 502-1 (CAM 502-1): Return a portion of a Report in the form of Proposal 502-42 and related Comment 502-12. (PASSED TC ballot) See Attachment 13-8-6-a |
| 13-8-6-b | **APPEAL** Appeal of A. Ramirez of Underwriters Laboratories requesting the Council overturn the Association Action and Reject an Identifiable Part of Comment 502-27. This motion (CAM 502-2) failed on the floor of the Association Meeting. See Attachment 13-8-6-b |
| 13-8-7 | Act on the issuance of NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials*, with an issuance date of August 1, 2013 and an effective date of August 21, 2013, as acted on at the Association Meeting, with one amendment as follows: |
| 13-8-7-a | Amendment No. 801-1 (CAM 801-1): Accept Comment 801-16. (PASSED TC ballot) See Attachment 13-8-7-a |
| 13-8-8 | Act on the issuance of NFPA 1061, *Standard for Professional Qualifications for* |
Public Safety Telecommunicator, with an issuance date of August 1, 2013 and an effective date of August 21, 2013, as acted on at the Association Meeting, with no amendments. No Attachment

| 13-8-8-a | APPEAL | Appeal of C. McDuffie of APCO International requesting the Council overturn the Association action and accept Comment 1061-2, accept Comments 1061-3 and 1061-4, and accept the motion to return the entire document. These motions (CAMs 1061-1, 1061-2 and 1061-18) failed on the floor of the Association Meeting. See Attachment 13-8-8-a |
| 13-8-8-a-1 | Comment received by J. Kilby-Richards, Chair of the Public Safety Telecommunications Personnel Professional Qualifications Committee and W. Peterson, Chair of the Professional Qualifications Correlating Committee on the appeal of C. McDuffie. See Attachment 13-8-8-a-1 |
| 13-8-9 | Administratively Withdrawn |
| 13-8-10 | Administratively Withdrawn |
| 13-8-11 | The 2013 Revision Cycle Consent Documents were letter balloted by the Council with an issuance date of May 28, 2013 and an effective date of June 17, 2013 as shown below: No action is necessary |
| 51B | Standard for Fire Prevention During Welding, Cutting, and Other Hot Work |
| 56 | Standard for Fire and Explosion Prevention During Cleaning and Purging of Flammable Gas Piping Systems |
| 77 | Recommended Practice on Static Electricity |
| 306 | Standard for the Control of Gas Hazards on Vessels |
| 403 | Standard for Aircraft Rescue and Fire-Fighting Services at Airports |
| 412 | Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment |
| 610 | Guide for Emergency and Safety Operations at Motorsports Venues |
| 780 | Standard for the Installation of Lightning Protection Systems |
| 1002 | Standard for Fire Apparatus Driver/Operator Professional Qualifications |
| 1021 | Standard for Fire Officer Professional Qualifications |
| 1026 | Standard for Incident Management Personnel Professional Qualifications |
| 1031 | Standard for Professional Qualifications for Fire Inspector and Plan Examiner |
| 1033 | Standard for Professional Qualifications for Fire Investigator |
| 1143 | Standard for Wildland Fire Management |

The following 2014 Revision Cycle Consent Documents were letter balloted by the Council:

| 790 | Standard for Competency of Third-Party Field Evaluation Bodies with an issuance date of July 5, 2013 and an effective date of July 25, 2013 |
791 *Recommended Practice and Procedures for Unlabeled Electrical Equipment Evaluation* with an issuance date of **July 5, 2013** and an effective date of **July 25, 2013**

1123 *Code for Fireworks Display* with an issuance date of **July 26, 2013** and an effective date of **August 15, 2013**

1851 *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting* with an issuance date of **July 26, 2013** and an effective date of **August 15, 2013**

No Attachment

### 13-8-12

Act on the issuance of proposed Tentative Interim Amendment (TIA) to Section 9.3.3 of the 2010 edition of NFPA 37, *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines* (TIA No. 1101).

- **13-8-12-a** Text of proposed TIA No. 1101. See Attachment 13-8-12-a
- **13-8-12-b** Ballot results of TIA No. 1101. PASSED the TC ballot on both technical merit and emergency nature. See Attachment 13-8-12-b
- **13-8-12-c** No comments received. No Attachment

### 13-8-13

Act on the issuance of proposed Tentative Interim Amendment (TIA) to Section 6.6.3 of the 2010 and proposed 2014 editions of NFPA 37, *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines* (TIA No. 1102).

- **13-8-13-a** Text of proposed TIA No. 1102. See Attachment 13-8-13-a
- **13-8-13-b** Ballot results of TIA No. 1102. PASSED the TC ballot on both technical merit and emergency nature. See Attachment 13-8-13-b
- **13-8-13-c** One comment was received. See Attachment 13-8-13-c

### 13-8-14


- **13-8-14-a** Text of proposed TIA No. 1095. See Attachment 13-8-14-a
- **13-8-14-b** Ballot results of TIA No. 1095. PASSED the TC ballot on both technical merit and emergency nature. See Attachment 13-8-14-b
- **13-8-14-c** No comments received. No Attachment

### 13-8-15


**STAFF NOTE:** At the March, 2013 Standards Council Meeting, TIA No. 1079 on NFPA 58, *Liquefied Petroleum Gas Code*, was proposed for the 2011 and 2014 editions. In the Regulations Governing Committee Projects (Regs) at Section 5.9, TIAs shall apply to the document existing at the time of issuance, except in the case of a document undergoing revisions where a TIA can apply to the existing and next edition of the document. Since the 2014 edition of NFPA 58 had not been submitted for issuance, the Council did not issue a TIA on the 2014 edition at the time of issuing a TIA on the 2011 edition. The proposed TIA was to be placed on the agenda for issuance concurrently with the 2014 edition of NFPA 58.

- **13-8-15-a** Text of proposed TIA No. 1079. See Attachment 13-8-15-a
- **13-8-15-b** Ballot results of TIA No. 1079. PASSED the TC ballot on both technical merit
<table>
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<th>Action</th>
<th>Document Reference</th>
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<tr>
<td>13-8-15</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to Sections 516.3(A)(1)(a) and 516.10(A) of the proposed 2014 edition of NFPA 70, <em>National Electrical Code®</em> (TIA No. 1096).</td>
<td>See Attachment 13-8-15-b</td>
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<td>13-8-16</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to Sections 445.20 of the proposed 2014 edition of NFPA 70, <em>National Electrical Code®</em> (TIA No. 1097).</td>
<td>See Attachment 13-8-17-a</td>
</tr>
<tr>
<td>13-8-16-a</td>
<td>Ballot results of TIA No. 1096. PASSED the Panel ballot on both technical merit and emergency nature; PASSED the CC ballot on correlation and emergency nature.</td>
<td>See Attachment 13-8-16-a</td>
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<tr>
<td>13-8-16-b</td>
<td>Ballot results of TIA No. 1097. FAILED the Panel ballot on both technical merit and emergency nature; FAILED the CC ballot on correlation and emergency nature.</td>
<td>See Attachment 13-8-17-b</td>
</tr>
<tr>
<td>13-8-16-c</td>
<td>Five comments were received.</td>
<td>See Attachment 13-8-17-c</td>
</tr>
<tr>
<td>13-8-17</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to Sections 10.2.3.6(5) and A.10.2.3.6 (5) of the 2012 and proposed 2015 edition of NFPA 99, <em>Health Care Facilities Code</em> (TIA No. 1104).</td>
<td>See SA 13-8-17-d</td>
</tr>
<tr>
<td>13-8-18</td>
<td>Act on the issuance of proposed Tentative Interim Amendment (TIA) to Sections 5.4.10, 6.3.3.2.10, 7.7.10, A.5.4.10.3, A.6.3.3.2.10.2 and A.7.7.10.2 of the 2010 and proposed 2014 editions of NFPA 130, <em>Standard for Fixed Guideway Transit and Passenger Rail Systems</em>, (TIA No.1080).</td>
<td>See Attachment 13-8-18-a</td>
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<tr>
<td>13-8-18-b</td>
<td>Ballot results of TIA No. 1104. PASSED the TC ballot on both technical merit and emergency nature; PASSED the CC ballot on correlation and emergency nature.</td>
<td>See Attachment 13-8-18-b</td>
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<tr>
<td>13-8-18-c</td>
<td>Five comments were received.</td>
<td>See Attachment 13-8-18-c</td>
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**STAFF NOTE:** Please note that TIA No. 1104 on NFPA 99, *Health Care Facilities Code*, is being proposed for the 2012 and the 2015 editions. In the *Regulations Governing the Development of NFPA Standards* (Regs) at Section 5.9, TIA shall apply to the document existing at the time of issuance, except in the case of a document undergoing revisions where a TIA can apply to the existing and proposed editions. NFPA 99 is expected to be an A2014 document. If this TIA on the 2012 edition is issued by the Standards Council, the proposed TIA for the 2015 edition will be placed on a future Council agenda for consideration of issuance concurrently with the 2015 edition of NFPA 99.
6.3.3.2.10, 7.7.10, A.5.4.10.3, A.6.3.3.2.10.2 and A.7.7.10.2 of the 2010 and proposed 2014 editions of NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, (TIA No.1080). The Council directed the Technical Committee seek further input from the National Electrical Code (NEC) Correlating Committee and NEC Code Making Panel 13 on whether this TIA, if issued, would cause any correlation issues with documents that report through the National Electrical Code Project.

13-8-19-a  Text of proposed TIA No. 1080 and Minute Item from March, 2013 meeting (13-3-11). See Attachment 13-8-19-a

13-8-19-b  Ballot results of TIA No. 1080. PASSED TC ballot on both technical merit and emergency nature. See Attachment 13-8-19-b

13-8-19-c  Four public comments were received. See Attachment 13-8-19-c

13-8-19-d  APPEAL

Appeal of A. Schaefer of Underwriters Laboratories requesting the Council not issue TIA No. 1080 on NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems. See Attachment 13-8-19-d

13-8-19-d-1  Comments on appeal from the Chairs of Fixed Guideway Transit and Passenger Rail Systems and Road Tunnel and Highway Fire Protection. See Attachment 13-8-19-d-1


13-8-19-f  Informational ballot. See Attachment 13-8-19-f

13-8-20  Act on the issuance of proposed Tentative Interim Amendment (TIA) to Sections 12.1.2 and A.12.1.2 of the 2011 and proposed 2014 editions of NFPA 502, Standard for Road Tunnels, Bridges, and Other Limited Access Highways, (TIA No. 1083).

STAFF NOTE: At its March 6-7, 2013 meeting the Council voted to defer action on issuing proposed Tentative Interim Amendment (TIA) to Sections 12.1.2 and A.12.1.2 of the 2011 and proposed 2014 editions of NFPA 502, Standard for Road Tunnels, Bridges, and Other Limited Access Highways, (TIA No. 1083). The Council directed the Technical Committee seek further input from the National Electrical Code (NEC) Correlating Committee and NEC Code Making Panel 13 on whether the TIA, if issued, would cause any correlation issues with documents that report through the National Electrical Code Project.

13-8-20-a  Text of proposed TIA No. 1083 and Minute Item from March, 2013 meeting (13-3-11). See Attachment 13-8-20-a

13-8-20-b  Ballot results of TIA No. 1083. PASSED TC ballot on both technical merit and emergency nature. See Attachment 13-8-20-b

13-8-20-c  Three public comments were received. See Attachment 13-8-20-c

13-8-20-d  APPEAL

Appeal of A. Schaefer of Underwriters Laboratories requesting the Council not issue TIA No. 1083 on NFPA 502, Standard for Road Tunnels, Bridges, and Other Limited Access Highways. See Attachment 13-8-20-d

13-8-20-d-1  Comments on appeal from the Chairs of Fixed Guideway Transit and Passenger Rail Systems and Road Tunnel and Highway Fire Protection. See Attachment 13-8-20-d-1

13-8-20-e  Report of the NEC Correlating Committee and NEC Code Making Panel 13. See
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| 13-8-26 | Act on the issuance of proposed Tentative Interim Amendment (TIA) to various Sections of the 2012 edition of NFPA 2112, *Standard on Flame-Resistant...
**Garments for Protection of Industrial Personnel Against Flash Fire (TIA No. 1105).**

| 13-8-26-a | Text of proposed TIA No. 1105. See Attachment 13-8-26-a |
| 13-8-26-b | Ballot results of TIA No. 1105. **PASSED** the TC ballot on both technical merit and emergency nature. See Attachment 13-8-26-b |
| 13-8-26-c | No comments were received. No Attachment |
| **13-8-27 APPEAL** | Appeal from G. Cahanin of Gregory J. Cahanin Fire Code Consulting requesting the Council expunge a task group memorandum summary from being published with Public Input 25 on NFPA 33-2011 and direct the NFPA 13 Technical Committee to establish a new task group to review the indoor portion of Public Input 25 on NFPA 33-2011. See Attachment 13-8-27 |
| 13-8-27-a | Copy of Public Input 26 submitted by G. Cahanin. See Attachment 13-8-27-a See SA 13-8-27-a |
| 13-8-27-b | Correspondence between G. Cahanin and Secretary of the Standards Council. See Attachment 13-8-27-b See SA13-8-27-b |
| 13-8-27-d | Comment received by T. Euson, Chair of the Technical Committee on Finishing Processes, on the Appeal of G. Cahanin. See Attachment 13-8-27-d |

**13-8-28**

At the March 2013 meeting, the Council reviewed the request of William Reilly of Victaulic that NFPA establish a new standard for the application of hybrid, gas, and fine water droplet systems. After review of all the material before it, the Council voted to publish a notice to solicit public comments on the need for the project, information on resources on the subject matter, those interested in participating, if established, and other organizations actively involved with the subject. The Council was specifically looking for manufacturers that are actively developing hybrid droplet systems and whether there are enough common installation practices and procedures available to support a standard, and the intended application for this technology. The Council is also seeking input on whether the subject matter could be covered by an existing technical committee or possibly through the creation of a new document.

The comment period has passed and twenty-two comments were received. See SA 13-8-28

| 13-8-28-a | Review the correspondence from the Code Fund concerning an information gathering project on hybrid water mist systems that will be undertaken as a student project with the University of Maryland. See SA 13-8-28-a **ADDITION** |
| 13-8-29 | Consider the request of Chief Kenneth Richards on behalf of the Technical Committee on Fire Service Training that NFPA establish a new standard for training structures, props, and equipment. See Attachment 13-8-29 |
| 13-8-30 | Consider the request from Brian Montgomery, Chair of the Non-structural Fire Fighting SCBA Committee to approve a Committee Scope. This Committee was approved by the Council at their October, 2012 meeting. The proposed scope is as follows: **Proposed Committee Scope:** This Committee shall have primary responsibility for documents on respiratory equipment, including breathing |
air, for emergency response personnel other than those involved in structural fire fighting operations, during incidents involving hazardous or oxygen deficient atmospheres. These types of operations include tactical law enforcement, confined space, and hazardous materials response operations. This Committee shall also have primary responsibility for documents on the selection, care and maintenance of respiratory equipment and systems by emergency services organizations and personnel. See Attachment 13-8-30 See SA 13-8-30

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<td>2013 F2015</td>
<td>F2015 to F2016</td>
<td>Permanent Move</td>
<td>3 to 4 year cycle</td>
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<td>2011 F2014</td>
<td>F2014 to F2015</td>
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<td>4 to 5 year cycle</td>
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<td>F2017 to F2016</td>
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<td>4 to 3 year cycle</td>
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<tr>
<td>96</td>
<td>2014 A2016</td>
<td>A2016 to F2016</td>
<td>One Time Move</td>
<td>3 to 3 ½ year cycle</td>
<td></td>
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</tbody>
</table>

See Attachment 13-8-31

13-8-32 Report of the Membership Task Group (M. Snyder, Chair)

13-8-32-a Act on pending applications for Committee Members. See SA 13-8-32-a

13-8-32-b Aircraft Rescue and Fire Fighting Committee’s request approval for their Guidelines for Additional Clarification of Interest Classifications for NFPA Technical Committee Members and reclassification of members. See SA 13-8-32-b

13-8-32-c Appeal from E. Bonifas of Alarm Detection Systems requesting the Council re-evaluate some members of the Signaling Systems for the Protection of Life and Property - Supervising Station Fire Alarm and Signaling Systems Committee. See SA 13-8-32-c ADDITION

13-8-33 Report of the Policy and Procedures Task Group (J. Milke, Chair) See SA 13-8-33

13-8-34 Report of the Recording Secretary on the Minutes for the March 2013. No Attachment

13-8-35 Review the dates and locations of upcoming Council Meetings, as follows:

October 22-23, 2013 (REVISED)
(TG Meeting 8:00 AM on October 22) San Diego, CA

March 5-6, 2014
(TG Meeting 8:00 AM on March 5) San Juan, Puerto Rico

August 11-14, 2014
(TG Meeting 12:00 PM on August 11) Quincy, MA

October 28-29, 2014
(TG Meeting 8:00 AM on October 28) TBD

13-8-36 Consider the request of Barry Badders, Chair of the Fire Test Committee that NFPA consider the establishment of a new test method to evaluate fire/ignition resistance of upholstered furniture subject to a flaming ignition source. The proposed scope for the documents is as follows:
<table>
<thead>
<tr>
<th>Proposed Document Scope: This document would provide a test method to evaluate fire/ignition resistance of upholstered furniture subject to a flaming ignition source.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>13-8-37</strong> Consider the request of the Confined Space Safe Work Practices Committee to enter a new document NFPA 350, <em>Guide for Safe Confined Space Entry and Work</em> into the Fall 2015 revision cycle. The Council approved the establishment of this proposed document at the March 2007 Council Meeting.</td>
</tr>
<tr>
<td>Proposed Document Scope: This guide is intended to protect workers who enter into confined spaces for inspection or testing or to perform associated work from death and from life-threatening and other injuries or illnesses and to protect facilities, equipment, non–confined space personnel, and the public from injuries associated with confined space incidents.</td>
</tr>
<tr>
<td>See SA 13-8-37 ADDITION</td>
</tr>
</tbody>
</table>
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-13)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 7-14

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS/HAS NOT achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is \([12 \text{ (eligible to vote)} - \text{ (ballot not returned)} - \text{ (abstention)} = \times 0.75 = \text{ ]}

___ Eligible to Vote
___ Not Returned

___ Approve
___ Do Not Approve
___ Abstain

CC Action: PASS/FAIL

CMP 7 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS NOT achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is \( 9 \) \([14 \text{ (eligible to vote)} - 0 \text{ (ballots not returned)} - 1 \text{ (abstention)} = 13 \times 0.66 = 8.58]

<table>
<thead>
<tr>
<th>14 Eligible to Vote</th>
<th>0 Not Returned</th>
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</thead>
<tbody>
<tr>
<td>7 Approve</td>
<td>(Cybula, LaDart, Mercier, Palmieri, Ray, Straniero)</td>
</tr>
<tr>
<td>6 Do Not Approve</td>
<td></td>
</tr>
<tr>
<td>1 Abstain</td>
<td>(Hunter)</td>
</tr>
</tbody>
</table>

CMP Action: FAIL
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 7
JUNE 2013 ASSOCIATION AMENDMENT 70-13

Amendment: Accept Comment 7-14

☐ Agree

If you agree with this amendment, the recommendation will be to revise 338.10(B)(4)(a) to read as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

X Do Not Agree*

If you do not agree with this amendment, the recommendation is to return to previous edition text and the proposed new text is not added. The existing text reads as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

Agree with original panel statement in that data concerning SE cable is not available.

Signature: __________

Name - Please Print: Thomas H. Cybula

Date: 06/24/13

Please return as soon as possible, but no later than June 26, 2013 to:

Kim Shea
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL®
JUNE 2013 ASSOCIATION AMENDMENT 70-13

Amendment: Accept Comment 7-14

☐ Agree

If you agree with this amendment, the recommendation will be to revise 338.10(B)(4)(a) to read as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Do Not Agree* If you do not agree with this amendment, the recommendation is to return to previous edition text and the proposed new text is not added. The existing text reads as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

I do not agree with this amendment. CMP-7 rejected the proposal due to the fact that the comment did not present statistical data indicating the effects of thermal exposure to Type SE Cable when installed and operated as an interior wiring method and installed in thermal insulation. CMP-7 indicated within the Panel Statement for rejection that we would like to see additional testing prior to accepting the proposal. There were 11 votes to reject comment 7-14, 2 votes to accept it, and one to abstain. This is a safety issue, and until such time that further testing is done, I am going to continue to support the “majority panel members” decision to reject this comment.

-------------------------------------------------------------------------------------------------

Signature: Sam La Dart

Name - Please Print: Sam La Dart

Date: 06-21-13
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 1
JUNE 2013 ASSOCIATION AMENDMENT 70-13

Amendment: Accept Comment 7-14

☐ Agree

If you agree with this amendment, the recommendation will be to revise 338.10(B)(4)(a) to read as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.


☑ Do Not Agree*

If you do not agree with this amendment, the recommendation is to return to previous edition text and the proposed new text is not added. The existing text reads as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

This proposal does not present statistical data indicating the effects of thermal exposure to Type SE Cable when installed and operated as an interior wiring method and installed in thermal insulation. Testing is needed on all Type SE Cable constructions embedded in thermal insulation.

Signature: ________________________________

Name - Please Print: ________________________________

Date: June 21, 2013

Please return as soon as possible, but no later than June 26, 2013 to:

Kim Shea
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
Amendment: Accept Comment 7-14

☐ Agree
If you agree with this amendment, the recommendation will be to revise 338.10(1)(4)(a) to read as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Do Not Agree
If you do not agree with this amendment, the recommendation is to return to previous edition text and the proposed new text is not added. The existing text reads as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Abstain

*Please give reasons for voting “Do Not Agree” or “Abstain”:

[Reason]

Signature: [Signature]

Name - Please Print: [Name]

Date: [Date]

Please return as soon as possible, but no later than XXXX, XXXX XX, 2013 to:

[Address]

July 22, 2013
Amendment: Accept Comment 7-14

☐ Agree

If you agree with this amendment, the recommendation will be to revise 338.10(B)(4)(a) to read as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 69°C (140°F) rated conductor.

☐ Do Not Agree*

If you do not agree with this amendment, the recommendation is to return to previous edition text and the proposed new text is not added. The existing text reads as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

Amendment 7-14 334.10 (B) (4)(a)

I disagree with this amendment. The panel action during the comment session was correct to reject. The vote was 11 affirmative, 2 negative, and 1 abstained. The existing language of Section 338.10 (B)(4)(a) is an improvement over the 2008 language which restricted the ampacity of Type SE Cable when used as an interior wiring method to the language of section 334.80. That section restricts the ampacity of Type NM cable to the 80°C column of Table 310.15(B)(16). The adopted 2011 language deleted the reference to 334.80 and conditionally restricted SE Cable to the 60°C ampacities only when installed in insulation. SE Cable may apply the 75°C ampacities when it is not installed in thermal insulation. Although this may or may not be viewed as an improvement in the 2008 requirements for the installation of Type SE Cable as an interior wiring method, it was accurately pointed out in the explanation of negative vote on Comment 7-15 (70-A2013 ROC), that removing the 2008 language may be problematic. 338.10(B)(4)(a) does not provide language concerning ampacity corrections and adjustments for various conditions of use which are included in 334.80. The panel statement to proposals 7-61 and comment 7-14 clearly indicated that a majority of the panel are not in favor of relaxing the existing language of this section. Please note that the 2011 text is a compromise reached in panel discussion during the 2010 comment meeting. Additionally this amendment
accepting comment 7-14 dramatically expands the scope of the original proposal 7-61 (70-A2013 ROP), which limited its application to runs of five (5) feet or less. Notably there was another proposal (7-64) that attempted similar action by removing the 60 °C restriction to lengths of 2 feet or less. The panel rejected both!

As I have pointed out this amendment expands the scope of both mentioned proposals allowing unrestricted lengths of cable in insulation without consideration of conditions of installation as addressed in 334.80. The substantiation for comment 7-14 was predicated on a paper titled “Exploration Study of Temperatures Produced by Self-Heating of Residential Branch Circuits Wiring When Surrounded by Thermal Insulation”. On page 272 the test titled “Cable Temperature Under Load” clearly states in the second to last sentence of the first paragraph that the “Thermal insulation used (R-11) was placed on one side of the conductors within the bay”, not surrounded as indicated in the studies title. Also the term conductor is used in this sentence rather than cable. Accordingly these studies comparisons to a live installation should be viewed as flawed; it simply does not consider SE Cable it is limited to NM Cables. This focused study also fails to evaluate thermal effects on (NM) cable under dynamic conditions one would expect encounter with a real world installation. There is no reference to heating of NM Cable when bundled, passing through bored holes, or in proximity to other mitigating factors (such as ambient) that may elevate the temperature rise of the installed cable beyond that obtained due to its own internal I²R losses. Clearly this paper does not evaluate the survivability of Type SE Cable nor does it offer statistical data supporting acceptance of this amendment. Such absence of technical documentation evaluating the performance of Type SE Cable when installed in thermal insulation and operating at rated load was a concern of CMP-7 during both the 2011 and 2014 cycles. Note that the panel requested funding for such a study to put this concern to rest. I am not aware of a commitment by industry or any other concerned partner to investigate the panels concerns regarding the survivability of SE Cable or its failure when used as an interior wiring method and installed in insulation. Further concern of this study includes; it only evaluates the thermal effects on Type NM-B when installed in R-11 (see P-272 Cable Temperature under Load NBSIR-1477), R-11 insulation is no longer recommended in typical 2" x 4" wall sections (R-13 is generally installed). Additionally in many cases the introduction of iycynene provides R factors far in excess of R-13. Chronologically this study is obsolete. It is dated July 1978. Things have changed in the past thirty five (35) years! Where is the documentation in support of acceptance of this amendment as submitted for this ballot? I find it hard to believe that an outdated study for Type NM Cable is appropriate for consideration of contemporary installation requirements for another cable type. These listed facts were a consideration of this panel member in developing recommendations for panel actions during the comment meetings. Additionally the submitted report (NBSIR78-1477) does not consider the integrity of Type NM-B Cable when operated in insulated floors or ceilings. These areas provide deeper structural cavities and mandate increased thermal insulation values upwards of R-30 in some cases per current building codes. Also the study does not address Type NM-B installed in insulation and located in areas subjected to higher ambient temperatures such as attics and crawls spaces. It only appears to consider internal heating due to I²R losses. Again it is my opinion that this study and the arguments in comment 7-14 do not support acceptance of this amendment. That being said it may also be interesting to note that the panel chose to not consider a proposed study cited in proposal 4-97 of the 1987 Code Cycle which did document a deleterious effect on Type SE Cable (specifically mentioned) when installed in insulation (See Comment 7-15 Hartwell reference the 1987 TCR). The panel had difficulty citing this information to retain the 2008 language of 338.10(B)(4)(a) which restricted the allowable ampacity of SE Cable to that of a 60° C conductor. The forensic report was printed in the 1987 TCR (reproducible as PDF) but the archival documents could not be located. This concern was discussed at some length during panel discussions. In light of these issues and exhaustive panel debate the current language in 338.10(B)(4)(a) was edited to its present 2011 language. It seems counterintuitive at this point to accept a limited focused study on NM Cable, performed 35 years ago and disregard the printed information in the 1987 TCR. Perhaps its relevance with or without the original document has reemerged? It is important to also consider the global impact of adopting this amendment. The National Electrical Code essentially provides for
installation of non-metallic wiring methods (NM and SE) in type III, IV, and V Construction. The use of these wiring methods is essentially unrestricted in dwelling units which in many areas are predominately Type V structures. In today’s construction higher insulations values are prevalent. Considering the lack of recognized, verifiable documentation indicating Type SE Cable is not adversely affected by operation at amperages higher than those listed in the 60° C Column, caution is warranted in consideration of the committee’s decision. I do not see how acceptance of this amendment is possible.

Signature: __________________________________________

Name - Please Print: Charles Palmieri _______________________

Date: June 17, 2013

Please return as soon as possible, but no later than June 26, 2013 to:

Kim Shea
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
Amendment: Accept Comment 7-14

☐ Agree

If you agree with this amendment, the recommendation will be to revise 338.10(B)(4)(a) to read as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

XXXX Do Not Agree

If you do not agree with this amendment, the recommendation is to return to previous edition text and the proposed new text is not added. The existing text reads as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

☐ Abstain

*Please give reasons for voting “Do Not Agree” or “Abstain”:

There was no new information presented at the NFPA annual meeting to address the panel 7 reason for rejecting the comment.

CMP-7 ROC Comment:
“"This proposal does not present statistical data indicating the effects of thermal exposure to Type SE Cable when installed and operated as a interior wiring method and installed in thermal insulation. The laboratory test results submitted indicating the effects of thermal damage on interior branch circuit conductors contained within a factory cable assemblies only evaluates Type NM Cable. CMP-7 would like to see additional testing on Type SE Cable embedded in thermal insulation.”

Panel 7 should maintain its original position until information is provided to show that SE cable that is installed as NM cable in thermal insulation should not have the same ampacity as NM cable.

Signature: ____________________________
George A. Straniero

Name - Please Print: ____________________________
George A. Straniero

Date: ____________________________
6/19/13

Please return as soon as possible, but no later than June 26, 2013 to:

Kim Shea
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
 Amendment: Accept Comment 7-14

☐ Agree

If you agree with this amendment, the recommendation will be to revise 338.10(B)(4)(a) to read as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

...  

☐ Do Not Agree*

If you do not agree with this amendment, the recommendation is to return to previous edition text and the proposed new text is not added. The existing text reads as follows:

(a) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80. Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

...  

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

Abstain – The Aluminum Association could not reach consensus.

Signature:  

Name - Please Print:  Christel Hunter

Date:  6/24/13

Please return as soon as possible, but no later than June 26, 2013 to:

Kim Shea
FAX: 617-984-7056
Backup Proposal 7-61

7-61 Log #2501 NEC-P07 Final Action: Reject (331.10(B)(4)(a))

Submitter: Kerry W. Cromer, NC Association of Electrical Contractors

Recommendation: Revise text to read as follows:

(4) Interior Installations. In addition to the provisions of this article, Type SE service-entrance cable used for interior wiring shall comply with the installation requirements of Part II of Article 334, excluding 334.80.

Substantiation:

1) The conductors within SE Cable are rated 90 degrees (and sometimes 140 degrees) and the cables are Not rated at 75 degrees Centigrade. Therefore, this rating (75 degrees Centigrade) is not the rating of the cable. The standard used to test and list SE type cable is ANSI/UL 854 which is a minimum 75 degree Centigrade outer jacket and 90 degree Centigrade conductors. SE service-entrance cable used for interior wiring shall comply with the 60°C (140°F) conductor temperature rating.

2) These branch circuits are usually only installed within insulation less than 1.5 m (5 ft) and are usually 30 to 50 feet in length.

3) Table 310.15(B)(7) permits the installation of SE type cable at the 75 degree Centigrade for a main power feeder within a dwelling. Utilizing SE type cable as a branch circuit conductor does not change the construction nor the rating of the cable. The standard used to test and list SE type cable is ANSI/UL 854 which is a minimum 75 degree Centigrade outer jacket and 90 degree Centigrade conductors. NM cable is listed per ANSI/UL 719 which list the outer jacket at 60 degree Centigrade and the conductors at 90 degree Centigrade for termination purposes. SE type cable construction is not the same as NM cable and it’s use should be permitted within it’s listing and marking without restriction.

Panel Meeting Action: Reject

Panel Statement: The submitter has not presented technical documentation to support excluding the 60 degree ampacity limitation for cable installations where 5 ft or less of a cable is run in contact with thermal insulation without maintaining spacing between the cables.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 12 Negative: 2 Abstain: 1

Explanation of Negative:

RUNYON, G.: The 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

RUNYON, G.: The panel should have accepted this comment. SE cable is not NM cable. It is constructed, tested and listed differently and it should not be required to be installed with the same limit as a NM cable. The standard used to test and list SE type cable is ANSI/UL854 which is a minimum 75 degree Centigrade outer jacket and 90 degree Centigrade conductors.

Explanation of Abstention:

HUNTER, C.: The Aluminum Association could not reach consensus.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 12 Negative: 2 Abstain: 1

Explanation of Negative:

RUNYON, G.: The 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

RUNYON, G.: The panel should have accepted this comment. SE cable is not NM cable. It is constructed, tested and listed differently and it should not be required to be installed with the same limit as a NM cable. The standard used to test and list SE type cable is ANSI/UL854 which is a minimum 75 degree Centigrade outer jacket and 90 degree Centigrade conductors.
The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes. The derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

Panel Statement:
This proposal does not present statistical data indicating the accordance with its listing.

Explanation of Abstention:
HUNTER, C.: The Aluminum Association could not reach consensus.

Accept in Principal with the text to read as follows:

Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes. The derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

Backup Proposal 7-61

Panel Statement: The submitter has not presented technical documentation to support excluding the 60 degree ampacity limitation for cable installations where 5 ft or less of a cable is run in contact with thermal insulation without maintaining spacing between the cables.

Number Eligible to Vote: 14
Ballot Results: Affirmative: 11 Negative: 2 Abstain: 1
Explanation of Negative:
HUNTER, C.: The Aluminum Association could not reach consensus.

Comment on Affirmative:
SMITH, M.: Putting any limits of distance on imbedded insulation could be misused. If a conductor becomes non-compliant after final inspections have occurred and insulation is added after occupancy, CMP-7 has requested a NFPA Projects that is currently in the process to evaluate these cables and conditions.
A VOICE: Maybe we should try this again. I call the question.

A VOICE: Second.

MR. BELL: Okay. We're voting on calling the question. I think I made that clear before. So it's a nondebatable motion. So we move directly to the vote again which is calling the question.

Press 1 if you're in favor of the motion, and press 2 if you're opposed to the motion. Vote now.

5 seconds.

Voting is closed. Thank you.

Now we'll move directly to the motion on the floor which is to reject Comment 6-31. Press 1 if you're in favor of the motion, and press 2 if you're opposed to the motion.

A VOICE: Mr. Chairman --

MR. BELL: Reject Comment 6-37 is the motion on the floor. Press 1 if you're in favor of the motion, and press 2 if you're opposed to the motion, vote now. 5 seconds.

Voting is closed. Motion fails.

So we'll move on to the next sequence which is 70-13. Is there a motion on the floor related to Motion 70-13? Microphone 3.

MS. HUNTER: Thank you. My name is Christel Hunter. I'm with General Cable, and I make a motion to accept Comment 7-14.

MR. BELL: Motion on the floor is to accept Comment 7-14. Is there a second?
A VOICE: Second.
MR. BELL: I hear a second. Please proceed.
MS. HUNTER: Thank you. Comment 7-14 was to revert the language in 338.10(B)(4)(a) to the language that we had in the 2005 NEC. In this case, we've gone through a couple of different language versions over the last two cycles.

The topic is service entrance cable, and

service entrance cable is listed at 75 degrees C. In 2008, the panel put a limitation on service entrance cable to 60 degrees C. In 2011, we came back and said, well, it's only limited to 60 degrees C if it's in thermal insulation, and we left it that way for the 2014.

What I would like to do is go back to using service entrance cable at its listed temperature. Service entrance cable is listed under a different products standard than nonmetallic sheet cable, but what has happened is they have been equated because they are of similar construction. They have different product standards, different applications. Typically, we limit NM cable to 60 degrees C because we use it for branch circuit wiring particularly in residences, and it was limited to 60 degrees C several decades ago primarily because when you put it into a light fixture, the additional heat from the -- I'm sorry, Luminaire would degrade the
insulation which at the time was 60 degrees C

Insulations now within the cable is

90 degrees C, and especially for service entrance cable, you don't use it for light fixtures. You use it for large appliances, for obviously feeders and service entrance. So we don't have the same concerns with the application for service entrance cable that we do for NM, and we have a product that's listed at 75 degrees C.

I would like for the Code to allow this product to be used in accordance with its listing and revert back to the language in 2005. So I would ask that you accept Comment 7-14. Thank you.

MR. BELL: Thank you, Mr. Johnston.

MR. JOHNSTON: Thank you, Mr. Chair. I would like to once again defer to the Chair of Code-Making Panel 7, Michael Smith, please.

MR. SMITH: Thank you very much, Mr. Chairman. Michael W. Smith, Chairman, Code-Making Panel Number 7 supported by National Electrical Contractors Association. I speak against this motion.

This has been a quite a -- at least a two-Cycle debate on this use of USC SE cable and thermal insulation. We've actually had requests twice now to the Research Foundation to conduct a study on SE cable without any success. We're still...
looking for better substantiation showing that this conductor cable will not have any degradation throughout the -- being installed in these insulated ceilings and walls.

So, again, I would hope that this body would reject this comment. Thank you very much.

MR. BELL: Thank you. Microphone 5.

MR. MERCIER: Dave Mercier with Southwire Company, speaking against the motion.

We make a lot of SE cable, SEU and SER.

And we make it two different ways. We make it with THHM conductors, THWM, and we also make it with XHHW conductors with thermoset. We also make a lot of large NM cables.

The bottom line, we're using the same THHN conductors and NM cables that we're using in our SE cable. The jacket on that cable, the only difference is sunlight resistance between the two jackets. So thermally, our SE USC are cables thermally the same as the NM cable. So I don't understand why we want to operate one at a higher temperature when they're used for the same branch circuit.

Other lamps, lighting, Luminaires, it's just one condition that you can have higher heat with conductors. Bundling and things like that can
also cause a heat rise in conductors also.
So with that, there are multiple types of
construction allowed by UL. There are multiple
constructions that are being sold every day in the
market; and to differentiate between this would, in
my opinion, cause a safety hazard.

MR. BELL: Microphone 3.

MR. MASERICK: Thank you, Mr. Chairman.

John Maserick for IEC, speaking in favor of the
motion.

IEC supports this motion and asks you to
vote in favor of the motion. Thank you very much.

MR. BELL: Thank you. Microphone 2.

MR. HOLUB: Thank you. Richard Holub,
representing American Chemistry Council, and I
stand to speak in support of this motion.

I'm a little confused why we wouldn't vote
to accept using a conductor that is listed at its
operating temperature. I mean, this is real --
let's talk about what this is. This is about
selling larger conductors. It's not about safety.
Let's use it to its listed temperature, and let's

accept this motion. Thank you.

MR. BELL: Thank you. Any further discussion
on the floor? Microphone 5.

MR. MERCIER: Dave Mercier with Southwire
Company. Let's keep this short.

NM cable is indeed listed at 90 degrees C.
I don't see anybody proposing that we use NM cables at 90 degrees C. The fact is the old standard allows SE cable to be listed at 75 degrees C. Everything on the market is 90 degrees C that I'm aware of. There is an allowance to have a 75 degree SE cable. So we don't want to bump up these two -- the maximum operating temperature because NM is 90 degrees C, and I don't see anybody wanting to go there.

MR. BELL: Thank you. Microphone 3.

MS. HUNTER: Thank you, Christel Hunter with General Cable, speaking in favor of the motion.

NM cable is not listed at 90 degrees C. The insulation inside the cable is 90 degrees C, but the cable itself is limited at 60 degrees C, and that is reflected in both the NEC and the product standard.

MR. BELL: Thank you. Any further discussion on the floor? Any additional comments, Mr. Johnston?

MR. JOHNSTON: I have no additional comments, Mr. Chair.

MR. BELL: Thank you. We'll go ahead and move to the motion on the floor which is to accept Comment 7-14. Press 1 if you're in favor of the motion and 2 if you're opposed. Vote now.

5 seconds.

Voting is closed. Motion passes. (115
Okay, ladies and gentlemen. We're going to take a ten-minute break now. So it's right around 10 o'clock. So we ask that you get back in your seats by 10:10. Thank you.

(Off the record at 9:59 a.m.)

(On the record at 10:22 a.m.)

MR. BELL: Okay. We're going to call this meeting back to order.

The maker of the motion for Sequence Number 70-14 has indicated to the NFPA that they're not going to pursue it.

So we're going to skip over to motion sequence which is 70-15. Is there a motion on the floor related to Sequence Number 70-15?

Microphone 2.

MR. HOLUB: Yes. My name is Richard Holub. I am the designated representative for Carl Fredericks. I make a motion that we accept Certified Amending Motion 70-15 and consequently accept Proposal 10-57.

MR. BELL: The motion on the floor is to accept Proposal 10-57. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Similar to a previous proposal, I did want to point out here that if this motion passes, we will not entertain a motion on Motion Sequence...
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 19, 2013

AMENDMENT (70-13)

Document: NFPA 70, *National Electrical Code*

Motion: To Accept Comment 7-14

**CC FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS** achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 \[12 \text{ (eligible to vote)} - 0 \text{ (ballots not returned)} - 0 \text{ (abstention)} = 12 \times 0.75 = 9\]

<table>
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**CC Action: PASS**

**CMP 7 FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 \[14 \text{ (eligible to vote)} - 0 \text{ (ballots not returned)} - 1 \text{ (abstention)} = 13 \times 0.66 = 8.58\]

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<tr>
<td>Abstain</td>
<td>1 (Hunter)</td>
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</table>

**CMP Action: FAIL**
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-19)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 11-28 Thereby Rejecting Proposal 11-83

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS/HAS NOT achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is ___ [12 (eligible to vote) – ___ (ballot not returned) – ___ (abstention) = ___ \times 0.75 = ___]

___ Eligible to Vote
___ Not Returned

___ Approve
___ Do Not Approve
___ Abstain

CC Action: PASS/FAIL

CMP 11 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS NOT achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 [14 (eligible to vote) – 1 (ballot not returned) – 0 (abstentions) = 13 \times 0.66 = 8.58]

14 Eligible to Vote
1 Not Returned (Bas)

7 Approve
6 Do Not Approve (Cole, Fahey, Folz, Gesualdi, Guidry, Smith)
0 Abstain

CMP Action: FAIL
Amendment: Accept Comment 11-28 Thereby Rejecting Proposal 11-83

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text. In this case, the result will be to delete proposed new section 440.9. This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

x Do Not Agree*

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

This issue is clearly a safety issue and can save lives and prevent accidents. Requiring the added safety ground is only logical. Local jurisdictions have recognized this for a number of years.

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to khes@nfpa.org or via fax to 617-984-7070.

Signature: [Signature]

Name - Please Print: Terry D. Cole

Date: 6/17/13
Amendment: Accept Comment 11-28 Thereby Rejecting Proposal 11-83

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Rgs"). Under the Rgs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Rgs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text. In this case, the result will be to delete proposed new section 440.9. This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Rgs. that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

The grounding requirement in new section NEC 440.9 has been debated over the last 2 Code cycles, some members of Code Panel 11 have personally encountered grounding and separation issues with non-threaded metal conduits, installed on roof tops and some other exterior locations to equipment covered by NEC Article 440. In addition, Comment 11-29 indicated the submitter had taken a survey of Electrical Contractors, over 50% responded that they had seen or heard of issues with non-threaded conduits on roof becoming separated, over 7% of respondents knew of serious shocks received due to compromised conduits, although this was not a scientific study, based on this information and personal experiences, there is definitely an issue with non-threaded conduits installed on roofs supplying equipment under the scope of NEC Article 440. The installation of the equipment grounding conductor would assure a 2nd return path for fault current if the conduit connections and continuity was compromised. These conduits are exposed to extreme temperature change and different environments, from snow, ice, rain, wind and other similar outdoor conditions. Another issue with conduits installed on roofs, are the methods which are utilized to secure and support the raceways, are less than perfect on a typical roof system found on most commercial and industrial buildings to avoid penetrating the membrane.
For these reasons, the States of Oregon and Washington, and possibly others, have found it necessary to amend the NEC at the state level to require an equipment grounding conductor as follows: Oregon - All metallic conduit installed on roof tops. OESC 250.118(14); Washington - All EMT installed in wet locations (outdoors). WAC 296-46B-35R-012.
Based on the concerns brought forth to the Code Panel, the requirement of the additional equipment grounding conductor adds another level of safety to these installations. This requirement should remain in the 2014 NEC to increase the level of safety for these installations.

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to kalser@nfpa.org or via fax to 617-984-7070.

Signature: Robert Fahey

Name - Please Print: Robert Fahey

Date: 6-20-13
Amendment: Accept Comment 11-28 Thereby Rejecting Proposal 11-83

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(e). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text. In this case, the result will be to delete proposed new section 440.9. This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

I agree with the comments of Mr. Guidry that safety is being compromised.

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to kshea@nfpa.org or via fax to 617-984-7070.

Signature: Stanley Folz

Name - Please Print: Stanley Folz

Date: 7/3/2013
Amendment: Accept Comment 11-28 Thereby Rejecting Proposal 11-83

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(e). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text. In this case, the result will be to delete proposed new section 440.9. This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☑ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

See reason on 11-30 giving in the substantiation by Mr. Mike Weitzel that I agree with.

__________________________________________

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to kshew@nfpa.org or via fax to 617-984-7070.

Signature: _________________________________

Name - Please Print: ERIC GESUALDI

Date: 6-24-13
Amendment: Accept Comment 11-28 Thereby Rejecting Proposal 11-83

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text. In this case, the result will be to delete proposed new section 440.9. This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

I believe safety is being compromised by not installing an EGC in the raceway as was proposed. I’ve seen too many EMT raceways with broken couplings and connectors in the past and I agree with the proposal that was accepted by the panel, not the comment that was accepted at the technical meeting. I also believe in speaking with others at the technical meeting last week that there was confusion with the new electronic voting devices. I’m not sure that the voting members understood fully what they were voting on.

______________________________________________________________

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to kehea@nfpa.org or via fax to 617-984-7070.

Signature: ___________________________

Name - Please Print: ___________________________

Date: 6/17/13
Amendment: Accept Comment 11-28 Thereby Rejecting Proposal 11-83

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text. In this case, the result will be to delete proposed new section 440.9. This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs. that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

Many HVAC condensers are subjected to mechanical damage by children or homeowners cutting grass or working around these units. Liquid tight Flexible Metal Conduit or Electrical Metallic Tubing when subjected to movement can lose its ground return path effectiveness where an internal dedicated ground wire can maintain the ground path. Many engineers and electricians already include this ground conductor when installing outside HVAC condensers. However the installations we are most concerned with are the installers trying to get by with the bare minimum in every part of the installation not just this EGC requirement (i.e. the installations that need this “extra” equipment around the most).

Previously submitted evidence, along with the substantiation provided in Comments 11-3 and 11-29, is sufficient to require the extra degree of safety that is intended by Proposal 11-83.

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to kshea@nfpa.org or via fax to 617-984-7070.

Signature: [Signature]

Name - Please Print: Arthur J. Smith, III

Date: 6-19-13
is not permitted where subject to physical damage. EMT or liquidtight may be subject to damage, in Sections 358.12 and 350.12.

WRIGHT, J.: It is not reasonable to simply require a grounding conductor on equipment that has an excellent record of performance. Manufacturers of this product have not had issues or complaints about problems with either the armor or a product that has an excellent record of performance. Nothing in the report indicates this was a contributing factor.


Panel Statement:
See the panel action and statement on Comment 11-31.

Number Eligible to Vote: 14

Ballot Results:
Affirmative: 11 Negative: 3

Explanation of Negative:
MISSILDINE, JR., J.: Requiring a conductor for equipment ground rather than use of conduit or other means described in 250.118 is not a substitute for proper conduit application, installation or maintenance. Also, this change would only correct the stated problem for air conditioning and refrigeration equipment, not all rooftop units such as air handling units which would be covered by Article 430. This does not preclude the voluntary use of a conductor for equipment ground.

POWELL, C.: The panel action was appropriate to remediate an equipment grounding problem that exists in residential and commercial air conditioning installations. The supporting documentation identified that a problem exists with these residential and commercial installations but there was no evidence presented that the existing practices in industrial installations should be modified by this new code section. Typical industrial refrigeration units involve large motors whose installation does not require a local disconnect switch, (440.14 Exception No. 1), and therefore the substantiation does not apply. We request the following exception.

Exception to Code: Where Air Conditioning or Refrigerating Equipment is part of an industrial, commercial, or institutional installation operating under conditions of maintenance and supervision that ensure that only qualified persons monitor and supervise the system, LFMC shall be permitted to be used as an equipment grounding conductor when installed in accordance with 250.118(6).

Additionally, adding this exception will be consistent with Panel 8’s actions on 8-60.

WRIGHT, J.: This proposal should be rejected. Nothing in the substantiation, in the CPSC report or in the report of the Chicago incident indicates the wiring method was the cause of the electrocution. The photos enclosed with the substantiation do not show that EMT was used. The CPSC report is dated 2002 and only shows the number of consumer product-related electrocutions by specific products involved, not the specific cause. The report shows a greater number of electrocutions were related to other components of the installed household wiring than to the wiring method. In the case of damaged or exposed wiring, the “exact nature of the wiring was unspecified”. The use of a supplemental equipment grounding conductor should be a design decision based on the wiring method to be used and the unique installation environment in which the equipment is being installed. The Georgia Tech research study on grounding validates that EMT is a proven equipment grounding conductor when installed in accordance with the NEC and with either set-screw or compression type fittings.

Comment on Affirmative:
FAHEY, R.: It is agreed that the equipment grounding conductor is necessary, although it is recommended that the Technical Correlating Committee correlate this requirement with Code-Making Panel 8 and Code-Making Panel 11. It is
also recommended this proposal be evaluated by Code-Making Panel 5 for relocation into 250.118, eliminating the requirements in 350.60(B), 358.60 and 440.9.

Related Comments 11-29 and 11-32

11-29 Log #1257 NEC-P11  Final Action: Accept in Principle in Part (440.9)

Submitter: John Masarick, Independent Electrical Contractors, Inc.

Comment on Proposal No: 11-83

Recommendation: I ask the panel to continue to Accept in Principal this proposal. Article 440.9 including panel statements change is shown below.

440.9 Grounding and Bonding. Where equipment is installed outdoors with either Liquidtight Flexible Metal Conduit or Electrical Metallic Tubing, an equipment grounding conductor shall be provided as required per 350.60(B) and 358.60(B).

Substantiation: In a recent survey conducted by NEC over 50% of the respondents said they observed or heard of non-threaded conduit, to HVAC and refrigerator equipment, that came apart after being installed on rooftops. Also, over 7% indicated they knew of or received a serious electrical shock as a result of the separation of the conduit.

Panel Meeting Action: Accept in Principle in Part

Panel Statement: See the action and statement on Comment 11-32. The references to 350.62(B) and 350.68(B) are not required.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 10 Negative: 4

Explanation of Negative:


POWELL, C.: See additional details regarding the survey used in this substantiation, it cannot be known whether the respondents were a representative sample.


WRIGHT, J.: See my negative comment on Comment 11-28.

11-30 Log #1313 NEC-P11 Final Action: Accept in Principle in Part (440.9)

Submitter: Mike Wettett, Richland, WA

Comment on Proposal No: 11-83

Recommendation: Add new text to read as follows:

440.9 Grounding and Bonding. Where equipment is installed outdoors with either Liquidtight Flexible Metal Conduit of Electrical Metallic Tubing, an equipment grounding conductor shall be provided as required per 350.60(B) and 358.60(H).

Substantiation: First of all, steel conduit and tubing raceways such as EMT are excellent wiring methods. No one disputes that fact.

With that being understood, and despite what our friends representing the steel conduit industry may say, there is still a problem with loose or damaged conduit connections on some installations in the field. Outdoor installations of these types of wiring methods are commonly used to supply electrically-powered air-conditioning equipment. Though not exclusively, AC units are most often installed at grade level, or on rooftops of buildings.

When installed in these locations outdoors, there can be a problem with physical damage. This is not a reflection on the steel conduit itself. And Liquidtight Flexible Metal Conduit is an excellent wiring method in its own right. However, there are issues in the field.

Sometimes, the problem is with the installation. AHU’s or their field inspector will typically provide a ‘visual inspection’ of the installation, and will not attempt to check the tightness of the fittings. (After all, this is the installer’s or contractor’s responsibility). The installer is responsible to perform the installation in a workmanlike manner, and in accordance with the manufacturer’s instructions. [NEC 110.12, and 110.3(B)]. Obvious loose connections should be discovered at the time of installation or installation, if checked both visually, and in the manner described.

Other problems with the conduit installation may occur after installation. Because physical damage can occur, such as when a building rooftop is re-roofed, or when snow is removed, conduit or tubing buried under snow may be struck with a snow blower, and fittings may loosen and separate. When this occurs, the equipment grounding capability of the conduit or tubing wiring method is lost. Roofing contractors hire laborers who don’t show proper care for the installed electrical tubing on the roof, and merely ‘pull things out of the way’. In order to remove the old roof and install the new one.

The NEC addresses physical damage in many sections. Consider why Schedule 8 PVC conduit is required in locations subject to physical damage. Is the conduit defective? No, of course not. However, the heavier, tougher grade of conduit is required where installed in a traffic area such as a driveway located on the side of a building, because we know that there is a possibility that physical damage may occur if people in vehicles aren’t careful.

Also, in the case of Type NM Cable, nail plates are required where the NM Cable could possibly be damaged after wall covering is installed. Is this a problem with the NM Cable being defective? No, of course not. And, the cable industry does not take that the Code Panel is concerned about the quality of their product. Not at all. The concern is to protect good and properly installed cable from penetration from a screw or nail, after the cable is installed. We could go on to discuss buried conduits and cable requiring physical protection, but hopefully you get the point.

In the case of Health Care Facility Patient Care Areas, per Section 517.13(B), an insulated wire type equipment grounding conductor is required to be installed in the wiring method along with the branch-circuit conductors. Does this mean that the EMT tubing or the MC cable wiring method is not suitable for supplying power to electrical loads where a person is laying in a hospital bed? No, of course not. However, the issue is safety, and this rule that requires the additional or ‘redundant’ equipment grounding conductor has been in the Code for a long time.

Therefore, again, the steel conduit as a product is not being criticized. Nor is the PVC conduit, the NM Cable, nor the MC cable either.

What it does come down to is a matter of safety for personnel and property, which is the stated purpose of the Code. What has been proposed here is to simply assure that a wire type equipment grounding conductor be installed in the tubing or flex conduit to an air-conditioning unit installed outdoors, sized in accordance with Section 250.122, to provide a back-up plan, in the event that the equipment-grounding capability of the primary wiring method is not able to function as designed. That’s all.

This wire type EGC is relatively inexpensive, and will greatly increase safety in installations, which is what the NEC is all about. I know that there are those who may offer opposing views, but I urge you to continue to accept and support this proposal.

Panel Meeting Action: Accept in Principle in Part

Panel Statement: See the action and statement on Comment 11-29.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 10 Negative: 4

Explanation of Negative:


THOMPSON, J.: I fully support the safe installation and maintenance of all connected equipment. The conduit currently allowed by the Code is evaluated for its ability to serve as the equipment grounding conductor in addition to the requirements for mechanical strength. Conduit has a long and firmly established safety record. Based on the comments of this submitter, the suitability of EMT and other conduit methods to act as a suitable ground path is not in dispute. Rather, the proposal is attempting to address installation and maintenance concerns. As a result, the proposal does not address what the submitter considers to be the root cause of the concern (e.g., maintenance or installation). The NFPA Research Foundation should consider a research project to determine if maintenance and installation practices need to be addressed.

WRIGHT, J.: See my negative comment on Comment 11-28.

July 22, 2013

Supplemental Agenda July 29-August 1, 2013

Page 547 of 1861
AMENDMENT (70-19)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 11-28 Thereby Rejecting Proposal 11-83

CC FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS** achieved the necessary 3/4 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 [12 (eligible to vote) – 0 (ballots not returned) – 0 (abstentions) = 12 × 0.75 = 9]

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CC Action: PASS

CMP 11 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary 2/3 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 [14 (eligible to vote) – 1 (ballot not returned) – 0 (abstentions) = 13 × 0.66 = 8.58]

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CMP Action: FAIL
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-21)

Document: NFPA 70, National Electrical Code

Group Amending Motion: To Accept Proposal 12-129 and Comment 12-60

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS/HAS NOT** achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is __ [12 (eligible to vote) – ___ (ballot not returned) – ___ (abstention) = ___ \( \times 0.75 = ___ \)]

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CC Action: PASS/FAIL

CMP 12 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 8 [13 (eligible to vote) – 1 (ballot not returned) – 0 (abstentions) = 12 \( \times 0.66 = 7.92 \)]

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CMP Action: FAIL
Amendment (Group Amending Motion): Accept Proposal 12-129 and Comment 12-60

☐ Agree

If you agree with this amendment, the recommendation will be to delete a New Exception from 645.4(2) as follows:

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone:

And

If you agree with this amendment, the recommendation will be to revise 645.4(E)(4) to read as follows:

645.5(E)(4) Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

☒ Do Not Agree*

If you do not agree with this amendment, the recommendation is to return to previous edition text. The existing text reads as follows:

645.5(E)(4) Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

I agree with panel 12 in the reject panel panel statement.

On 12-11

Signature: [Signature]

Name - Please Print: Thomas L. Hedges

Date: 6/25/13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617- 984-7056
EMAIL: kshea@nfpa.org
Amendment (Group Amending Motion): Accept Proposal 12-129 and Comment 12-60

☐ Agree

If you agree with this amendment, the recommendation will be to delete a New Exception from 645.4(2) as follows:

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.

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☒ Do Not Agree*

If you do not agree with this amendment, the recommendation is to return to previous edition text. The existing text reads as follows:

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☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

90.1 states the purpose of NFPA 70 is protection of people and property. Over the past code cycles CMP-12 has made numerous reductions in the requirements for Information Technology Rooms in order to entice facility design engineers to use Article 645. CMP-12 should not allow the facility managers to make a decision on whether to protect the people or the equipment.

________________________________________
Signature: [Signature]

Name - Please Print: Jeffrey L. Holmes

Date: 7/25/13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Amendment (Group Amending Motion): Accept Proposal 12-129 and Comment 12-60

Agree

If you agree with this amendment, the recommendation will be to delete a New Exception from 645.4(2) as follows:

\[\text{Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.}\]

And

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\[\checkmark\] Do Not Agree* If you do not agree with this amendment, the recommendation is to return to previous edition text. The existing text reads as follows:

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Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

If the committee does not agree, the original working remains, but the implementation is spelled out in the changes the committee made in 645.4(2) by proposal 12-114. This should meet the needs of the proposal by the Technical Committee on Electronic Computer Systems.

Signature: 

[Signature]

Name - Please Print: Robert Johnson

Date: 26 June 2012

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
Amendment (Group Amending Motion): Accept Proposal 12-129 and Comment 12-60

☐ Agree

If you agree with this amendment, the recommendation will be to delete a New Exception from 645.4(2) as follows:

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☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

Panel 12 and Mr. Wysocki are in agreement that there needs to be relief from the requirement in 645.5(E)(4) that requires the shutdown of the ventilation in the underfloor space upon activation of a smoke detector.

Mr. Wysocki proposed (12-129) complete deletion of the requirement: Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

Panel 12, in its action on Proposal 12-114, responded Wysocki by inserting an exception to 6454(2) that reads:

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.
The Panel Statement on Proposal 12-114 was:

"Panel Statement: The panel wants all the safeguards of critical operation data systems, not just 645.10(B)(1)."

The Panel action on Proposal 12-114 was 13 affirmative with no negatives and no abstentions.

Section 645.10(B) provides for 5 additional fire protection elements.

(1) An approved procedure has been established and maintained for removing power and air movement within the room or zone.

(2) Qualified personnel are continuously available to meet emergency responders and to advise them of disconnecting methods.

(3) A smoke-sensing fire detection system is in place.
Informational Note: For further information, see NFPA 72-2010, National Fire Alarm and Signaling Code.

(4) An approved fire suppression system suitable for the application is in place.

(5) Cables installed under a raised floor, other than branch-circuit wiring and power cords installed in compliance with 645.5(D)(2) or (D)(3), or in compliance with 300.22(C), 725.154 (A), 770.113(C) and Table 770.154(a), 800.113(C) and Table 800.154(a), or 820.113(C) and Table 820.154(a).

The response to the Panel 12 action was the submittal of two comments (12-60 & 12-61) to completely remove the requirement that the HVAC system in the underfloor plenum shut down upon detection of products of combustion.

The panel rejected both comments with 13 affirmative votes, no negatives and no abstentions.

The Panel statement on Comment 12-60 was:

Panel Statement: The rationale for 645 permitting non-plenum cables in the raised floor plenum is that there are fire protection requirements in the article. Conformance to NFPA 75 is not required by Article 645. All references to NFPA 75, Standard for the Fire Protection of Information Technology Equipment, are in informational notes only. The NEC Style Manual prohibits references to other standards in the mandatory text. The panel, in its action on Proposal 12-114, provided the relief that the submitter seeks for installations with a high level of fire protection, i.e., critical operations data systems.

The Panel statement on Comment 12-61 was:

Panel Statement: The rationale for Article 645 permitting non-plenum cables in the raised floor plenum is that there are fire protection requirements in the Article. Conformance to NFPA 75 is not required by Article 645. All references to NFPA 75, Standard for the Fire Protection of Information Technology Equipment, are in informational notes only. The NEC Style Manual prohibits references to other standards
in the mandatory text. The panel, in its action on Proposal 12-114, provided the relief 
that the submitter seeks for installations with a high level of fire protection, i.e., critical 
operations data systems.

I continue to support the Panel 12 actions and statements on Proposals 12-114 and 12-129 and 
Comments 12-60 and 12-61.

Signature:

Name - Please Print: Stanley Kaufman

Date: June 17, 2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
Amendment (Group Amending Motion): Accept Proposal 12-129 and Comment 12-60

☐ Agree  

If you agree with this amendment, the recommendation will be to delete a New Exception from 645.4(2) as follows:

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(b), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.

And

If you agree with this amendment, the recommendation will be to revise 645.4(E)(4) to read as follows:

645.5(E)(4) Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

☒ Do Not Agree*

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☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

Panel 12 and Mr. Wysocki are in agreement that there needs to be relief from the requirement in 645.5(E)(4) that requires the shutdown of the ventilation in the underfloor space upon activation of a smoke detector.

Mr. Wysocki proposed (12-129) complete deletion of the requirement:

Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

Panel 12, in its action on Proposal 12-114, responded to Mr. Wysocki by inserting an exception to 6454(2) that reads:

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(b), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.

The Panel Statement on Proposal 12-114 was:
“Panel Statement: The panel wants all the safeguards of critical operation data systems, not just 645.10(B)(1).”

The Panel action on Proposal 12-114 was 13 affirmative with no negatives and no abstentions.

Section 645.10(B) provides for 5 additional fire protection elements.

(1) An approved procedure has been established and maintained for removing power and air movement within the room or zone.

(2) Qualified personnel are continuously available to meet emergency responders and to advise them of disconnecting methods.

(3) A smoke-sensing fire detection system is in place.
Informational Note: For further information, see NFPA 72-2010, National Fire Alarm and Signaling Code.

(4) An approved fire suppression system suitable for the application is in place.

(5) Cables installed under a raised floor, other than branch-circuit wiring and power cords installed in compliance with 645.5(D)(2) or (D)(3), or in compliance with 300.22(C), 725.154 (A), 770.113(C) and Table 770.154(a), 800.113(C) and Table 800.154(a), or 820.113(C) and Table 820.154(a).

The response to the Panel 12 action was the submittal of two comments (12-60 & 12-61) to completely remove the requirement that the HVAC system in the underfloor plenum shut down upon detection of products of combustion.

The panel rejected both comments with 13 affirmative votes, no negatives and no abstentions.

The Panel statement on Comment 12-60 was:

Panel Statement: The rationale for 645 permitting non-plenum cables in the raised floor plenum is that there are fire protection requirements in the article. Conformance to NFPA 75 is not required by Article 645. All references to NFPA 75, Standard for the Fire Protection of Information Technology Equipment, are in informational notes only. The NEC Style Manual prohibits references to other standards in the mandatory text. The panel, in its action on Proposal 12-114, provided the relief that the submitter seeks for installations with a high level of fire protection, i.e., critical operations data systems.

The Panel statement on Comment 12-61 was:

Panel Statement: The rationale for Article 645 permitting non-plenum cables in the raised floor plenum is that there are fire protection requirements in the Article. Conformance to NFPA 75 is not required by Article 645. All references to NFPA 75, Standard for the Fire Protection of Information Technology Equipment, are in informational notes only. The NEC Style Manual prohibits references to other standards in the mandatory text. The panel, in its action on Proposal 12-114, provided the relief that the submitter seeks for installations with a high level of fire protection, i.e., critical operations data systems.

I continue to support the Panel 12 actions and statements on Proposals 12-114 and 12-129 and Comments 12-60 and 12-61.

Signature: 

Name - Please Print: JEFFREY MENICA

Date: 6-20-2013
Backup Proposal 12-114

12-114 Log #2987 NEC-P12  Final Action: Accept in Principle (645.4(2))

Submitter: Stephen McCluer, APC by Schneider Electric

Recommendation: Revise text to read as follows:

A separate HVAC system is provided that is dedicated to information technology equipment use and is separated from other areas of occupancy. Any HVAC system that serves other occupancies shall be permitted to also serve the information technology equipment room if fire/smoke dampers are provided at the point of penetration of the room boundary. Such dampers shall operate on activation of smoke detectors and by operation of the disconnecting means required by 645.10(B).

Exception: Where information technology equipment is installed in compliance with 645.10(B)(1), a procedure shall be permitted that does not require the cessation of the air circulation within the room or zone.

Substantiation: This proposal recommends an exception to the mandatory shut down of the HVAC system or automatic activation of smoke dampers. Shutdown of the HVAC system is not always the most appropriate solution. In Section 645.10(B) (Critical Operations Data Center), operations are staffed 24/7 and an approved fire protection plan is required. Because of the extreme damage that can occur in the IT equipment within minutes of cooling interruption, it is sometimes preferable to address a fire at the equipment rack or enclosure level rather than at the level of an entire room or zone. In some cases the cessation of operations by IT equipment that is not directly affected by a fire can have greater life safety consequences than the fire itself. Automatic activation could be caused by false detection by highly sensitive fire detection systems. Conversely, where such incipient detector devices are employed, it is often possible to address the problem of overheated and/or smoking electronic equipment before it results in a fire. A good procedure can include alternate actions contingent upon the type and degree of fire hazard identified.

Panel Meeting Action: Accept in Principle

The panel accepts the editorial revision to 645.4 (2) of the proposal. The panel revises the recommended text of the Exception as follows:

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.

Panel Statement: The panel wants all the safeguards of critical operation data systems, not just 645.10(B)(1).
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### Table 2 Article 645 Revision

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<td></td>
<td>Informational Note: Text that is followed by a reference in brackets has been extracted from NFPA 75-2009, <em>Standard for the Protection of Information Technology Equipment</em>. Only editorial changes were made to the extracted text to make it consistent with this Code.</td>
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<tr>
<td><strong>I. General</strong></td>
<td>new</td>
<td>Establishes Part I General in compliance NEC Style Manual section 2.1.4 “Parts”</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>645.1 Scope.</strong> This article covers equipment, power-supply wiring, equipment interconnecting wiring, and grounding of information technology equipment and systems in an information technology equipment room.</td>
<td>645.1</td>
<td>Unchanged</td>
</tr>
<tr>
<td></td>
<td>Informational Note: For further information, see NFPA 75-2009, <em>Standard for the Protection of Information Technology Equipment</em>, which covers the requirements for the protection of information technology equipment and information technology equipment areas.</td>
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<tr>
<td><strong>645.2 Definitions.</strong></td>
<td>645.2</td>
<td>Unchanged</td>
</tr>
<tr>
<td><strong>Abandoned Supply Circuits and Interconnecting Cables.</strong> Installed supply circuits and interconnecting cables that are not terminated at equipment and not identified for future use with a tag.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Critical Operations Data System.</strong> An information technology equipment system that requires continuous operation for reasons of public safety, emergency management, national security, or business continuity.</td>
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</tr>
<tr>
<td><strong>Information Technology Equipment (ITE).</strong> Equipment and systems rated 600 volts or less, normally found in offices or other business establishments and similar environments classified as ordinary locations, that are used for creation and manipulation of data, voice, video, and similar signals that are not communications equipment as defined in Part I of Article 100 and do not process communications circuits as defined in 800.2.</td>
<td></td>
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</tr>
<tr>
<td><strong>Information Technology Equipment Room.</strong> A room within the information technology equipment area that contains the information technology equipment. [75:3.3.9]</td>
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<tr>
<td><strong>Remote Disconnect Control.</strong> An electric device and circuit that controls a disconnecting means through a relay or equivalent device.</td>
<td></td>
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<tr>
<td><strong>Zone.</strong> A physically identifiable area (such as barriers or separation by distance) within an information technology equipment room, with dedicated power and cooling systems for the information technology equipment or systems.</td>
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<tr>
<td>Table 2 Article 645 Revision (continued)</td>
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<td>----------------------------------------</td>
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</tr>
<tr>
<td><strong>Recommended Text</strong></td>
<td><strong>Source</strong></td>
<td><strong>Explanation</strong></td>
</tr>
<tr>
<td><strong>645.3 Other Articles.</strong> Circuits and equipment shall comply with 645.3(A) through (G), as applicable.**</td>
<td>645.3 &amp; 645.6</td>
<td>The existing text of 645.3 is unchanged except that a new (H) has been added.</td>
</tr>
<tr>
<td><strong>(A) Spread of Fire or Products of Combustion.</strong> Sections 300.21, 770.26, 800.26, and 820.26 shall apply to penetrations of the fire-resistant room boundary.**</td>
<td></td>
<td>The proper place for Section 645.6 Cables Not in Information Technology Equipment Room is in 645.3 Other Articles. Once it is moved to 645.3 the Informational Note is superfluous, so it has been deleted.</td>
</tr>
<tr>
<td><strong>(B) Plenums.</strong> Sections 300.22(C)(1), 725.154(A), 760.53(B)(2), 760.154(A), 770.113(C), 800.113(C), and 820.113(C) and Tables 770.154(A), 800.154(A) and 820.154(A) shall apply to wiring and cabling in a plenum (other space used for environmental air) above an information technology equipment room.**</td>
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</tr>
<tr>
<td><strong>(C) Grounding.</strong> The non-current-carrying conductive members of optical fiber cables in an information technology equipment room shall be grounded in accordance with 770.114.**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(D) Electrical Classification of Data Circuits.</strong> Section 725.121(A)(4) shall apply to the electrical classification of listed information technology equipment signaling circuits. Section 725.139(D)(1) and 800.133(A)(1)(b) shall apply to the electrical classification of Class 2 and Class 3 circuits in the same cable with communications circuits.**</td>
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</tr>
<tr>
<td><strong>(E) Fire Alarm Equipment.</strong> Parts I, II, and III of Article 760 shall apply to fire alarm systems equipment installed in an information technology equipment room.**</td>
<td></td>
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</tr>
<tr>
<td><strong>(F) Communications Equipment.</strong> Parts I, II, III, IV, and V of Article 800 shall apply to communications equipment installed in an information technology equipment room. Article 645 shall apply to the powering of communications equipment in an information technology equipment room.**</td>
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<tr>
<td><strong>Informational Note: See Part I of Article 100, Definitions, for a definition of communications equipment.</strong></td>
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</tr>
<tr>
<td><strong>(G) Community Antenna Television and Radio Distribution Systems Equipment.</strong> Parts I, II, III, IV, and V of Article 820 shall apply to community antenna television and radio distribution systems equipment installed in an information technology equipment room. Article 645 shall apply to the powering of community antenna television and radio distribution systems equipment installed in an information technology equipment room.**</td>
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</tr>
<tr>
<td><strong>645.6 (H) (new) Cables Not in Information Technology Equipment Room. Cables extending beyond the information technology equipment room shall be subject to the applicable requirements of this Code.</strong></td>
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</tr>
</tbody>
</table>
Table 2 Article 645 Revision (continued)

<table>
<thead>
<tr>
<th>Recommended Text</th>
<th>Source</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>645.4 Special Requirements for Information Technology Equipment Room.</strong> This article shall be permitted to provide alternate wiring methods to the provisions of Chapters 1 through 4 for power wiring, Part III of Article 725 for signaling wiring and Part V of Article 770 for optical fiber cabling when all of the following conditions are met:</td>
<td></td>
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<tr>
<td>(1) Disconnecting means complying with 645.40 645.30 are provided.</td>
<td>645.4</td>
<td>The existing text in unchanged except for renumbering the reference to 645.10 which has been moved to 645.30. A new (7), (8) and (9) have been added, see below.</td>
</tr>
<tr>
<td>(2) A separate heating/ventilating/air-conditioning (HVAC) system is provided that is dedicated for information technology equipment use and is separated from other areas of occupancy. Any HVAC system that serves other occupancies shall be permitted to also serve the information technology equipment room if fire/smoke dampers are provided at the point of penetration of the room boundary. Such dampers shall operate on activation of smoke detectors and by operation of the disconnecting means required by 645.40 645.30.</td>
<td>645.5(E)(1) 645.5(E)(4) 645.5(E)(5)</td>
<td>The recommended text for new 645.4(7), (8) &amp; (9), which cover conditions for using the area under a raised floor for wiring, logically belong with the other conditions in this section.</td>
</tr>
<tr>
<td>(3) All information technology and communications equipment installed in the room is listed.</td>
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<tr>
<td>(4) The room is occupied by, and accessible to, only those personnel needed for the maintenance and functional operation of the installed information technology equipment.</td>
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<tr>
<td>(5) The room is separated from other occupancies by fire-resistant-rated walls, floors, and ceilings with protected openings.</td>
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<tr>
<td><strong>Informational Note:</strong> For further information, see NFPA 75-2009, Standard for the Protection of Information Technology Equipment, Chapter 10, 10.1, 10.1.1, 10.1.2, and 10.1.3.</td>
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<tr>
<td>(6) Only electrical equipment and wiring associated with the operation of the information technology room is installed in the room.</td>
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<tr>
<td><strong>Informational Note:</strong> HVAC systems, communications systems, and monitoring systems such as telephone, fire alarm systems, security systems, water detection systems, and other related protective equipment are examples of equipment associated with the operation of the information technology room.</td>
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<tr>
<td>645.5(E)(1) (7) If a raised floor is present, the raised floor is of approved construction, and the area under the floor is accessible.</td>
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<tr>
<td>645.5(E)(4) (8) If a raised floor is present, ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall also be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.</td>
<td></td>
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<tr>
<td>645.5(E)(5) (9) If a raised floor is present, openings for cords and cables protect cords and cables against abrasion and minimize the entrance of debris beneath the floor.</td>
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<tr>
<td><strong>645.5 Supply Circuits and Interconnecting Cables.</strong></td>
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<tr>
<td><strong>(A) Branch-Circuit Conductors.</strong> The branch-circuit conductors supplying one or more units of information technology equipment shall have an ampacity not less than 125 percent of the total connected load. [Moved to 645.26 in Part II Power Circuits]</td>
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<tr>
<td><strong>(B) Power-Supply Cords.</strong> Information technology equipment shall be permitted to be connected to a branch circuit by a</td>
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</tbody>
</table>
Remote Disconnect Control. An electric device and circuit that controls a disconnecting means through a relay or equivalent device.

Zone. A physically identifiable area (such as barriers or separation by distance) within an information technology equipment room, with dedicated power and cooling systems, that contains information technology equipment or systems.

645.3 Other Articles. Circuits and equipment shall comply with 645.3(A) through (G), as applicable.

(A) Spread of Fire or Products of Combustion. Sections 300.21, 770.26, 800.26, and 820.26 shall apply to penetrations of the fire-resistant room boundary.

(B) Plenums. Sections 300.22(C)(1), 725.154(A), 760.53(B)(2), 760.154(A), 770.113(C), 800.113(C), and 820.113(C) and Tables 770.154(A), 800.154(A) and 820.154(A) shall apply to wiring and cabling in a plenum (other space used for environmental air) above an information technology equipment room.

(C) Grounding. The non-current-carrying conductive members of optical fiber cables in an information technology equipment room shall be grounded in accordance with 770.35(C).

(D) Electrical Classification of Data Circuits, Section 725.121(A)(4) shall apply to the electrical classification of listed information technology equipment signaling circuits. Section 725.139(D)(1) and 800.133(A)(1)(b) shall apply to the electrical classification of Class 2 and Class 3 circuits in the same cable with communications circuits.

(E) Fire Alarm Equipment. Parts I, II, and III of Article 760 shall apply to fire alarm systems equipment installed in an information technology equipment room.

(F) Communications Equipment. Parts I, II, III, IV, and V of Article 800 shall apply to communications equipment installed in an information technology equipment room. Article 645 shall apply to the powering of communications equipment in an information technology equipment room.

Informational Note: See Part I of Article 100, Definitions, for a definition of communications equipment.

(G) Community Antenna Television and Radio Distribution Systems Equipment. Parts I, II, III, IV, and V of Article 820 shall apply to community antenna television and radio distribution systems equipment installed in an information technology equipment room. Article 645 shall apply to the powering of community antenna television and radio distribution systems equipment installed in an information technology equipment room.

(H) Cables Not in Information Technology Equipment Room. Cables extending beyond the information technology equipment room shall be subject to the applicable requirements of this Code.

645.4 Special Requirements for Information Technology Equipment Room. This article shall be permitted to provide alternate wiring methods to the provisions of Chapters 1 through 4 for power wiring, Part II of Article 725 for signaling wiring and Part V of Article 770 for optical fiber cabling when all of the following conditions are met:

(1) Disconnecting means complying with 645.30 are provided.

(2) A separate heating/ventilating/air-conditioning (HVAC) system is provided to prevent overheating of the equipment.

(3) All information technology and communications equipment installed in the room is listed.

(4) The room is occupied by, and accessible to, only those personnel needed for the maintenance and functional operation of the installed information technology equipment.

(5) The room is separated from other occupancies by fire-resistive-rated walls, floors, and ceilings with protected openings.

Informational Note: For further information, see NFPA 75-2009, Standard for the Protection of Information Technology Equipment, Chapter 5.

(6) Only electrical equipment and wiring associated with the operation of the information technology room is installed in the room.

Informational Note: HVAC systems, communications systems, and monitoring systems such as telephone, fire alarm systems, security systems, water detection systems, and other related protective equipment are examples of equipment associated with the operation of the information technology room.

(7) If a raised floor is present, the raised floor is of approved construction, and the area under the floor is accessible.

(8) If a raised floor is present, ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 454.42(A).

The ventilation system shall also be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air ceases.

(9) If a raised floor is present, openings for cords and cables protect cords and cables against abrasion and minimize the entrance of debris beneath the floor.

645.13 Physical Protection. Where exposed to physical damage, supply circuits and interconnecting cables shall be protected.

645.14 Securing in Place. Power cables; communications cables; connecting cables; and associated boxes, connectors, plugs, and receptacles that are listed as part of, or for, information technology equipment shall not be required to be secured in place.

645.15 Grounding. All exposed non-current-carrying metal parts of an information technology system shall be bonded to the equipment grounding conductor in accordance with Article 250 or shall be double insulated. Where signal reference structures are installed, they shall be bonded to the equipment grounding conductor provided for the information technology equipment.

Informational Note: The bonding requirements in the product standards governing this listed equipment ensure that it complies with Article 250.

645.16 Marking. Each unit of information technology equipment shall be marked by a branch circuit shall be provided with a manufacturer’s nameplate, which shall also include the input power requirements for voltage, frequency, and maximum rated load in amperes.

645.18 Abandoned Supply Circuits and Interconnecting Cables. The accessible portion of abandoned supply circuits and interconnecting cables shall be removed unless contained in a raceway.

645.19 Installed Supply Circuits and Interconnecting Cables Identified for Future Use. (1) Supply circuits and interconnecting cables identified for future use shall be marked with a tag of sufficient durability to withstand the environment involved.

(2) Supply circuit tags and interconnecting cable tags shall have the following information:

(a) Date identified for future use.

(b) Date of intended use.

(c) Information relating to the intended future use.

II. Power Circuits

645.20 Uninterrupted Power Supplies (UPSs). Except for installations and applications covered in 645.20(1) or (2), UPS systems installed within the information technology equipment room, and their supply and output circuits, shall comply with 645.30. The disconnecting means shall also disconnect the battery from its load.

(1) Installations qualifying under the provisions of Article 685

(2) Power sources limited to 750 volt-amperes or less derived either from UPS equipment or from battery circuits integral to electronic equipment.

645.21 Power Distribution Units. Power distribution units that are used for information technology equipment shall be permitted to have multiple panelboards within a single cabinet, if the power distribution unit is utilization equipment listed for information technology equipment.

645.22 Power Systems Grounding. Power systems derived within listed information technology equipment that supply information technology systems through receptacles or cable assemblies supplied as part of this equipment shall not be considered separately derived for the purpose of applying 250.30 Informational Note: Where isolated grounding-type receptacles are used, see 250.146(D) and 406.3(D).

645.25 Engineering Supervision. As an alternative to the feeding and service load calculations required by Parts III and IV of Article 220, feeder and service load calculations for new or existing loads shall be permitted to be performed by qualified persons under engineering supervision.

645.26 Branch-Circuit Conductors. The branch-circuit conductors supplying one or more units of information technology equipment shall have an ampacity not less than 125 percent of the total connected load.

645.27 Power-Supply Cords. Information technology equipment shall be permitted to be connected to a branch circuit by a power-supply cord.

(1) Power-supply cords shall not exceed 4.5 m (15 ft).

(2) Power cords shall be listed and a type permitted for use on listed information technology equipment or shall be constructed of listed flexible cord and listed attachment plugs and cord connectors of a type permitted for information technology equipment.

Informational Note: One method of determining if cords are of a type permitted for the purpose is found in UL 60950-1, 2007, Safety of Information Technology Equipment - Safety - Part 1: General Requirements.

645.28 Interconnecting Cables. Information technology equipment units shall be permitted to be interconnected by means of listed cables and cable assemblies. The 4.5 m (15 ft) limitation of 645.27(1) shall not apply to interconnecting cables.

645.29 Under Raised Floors. Power cables, connecting cables, interconnecting cables, cord-and-plug connections, and receptacles associated with the information technology equipment installed under a raised floor shall comply with (1) through (4)-

(1) The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, nonmetallic wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquid-tight flexible metal conduit, or liquidtight flexible nonmetallic conduit, Type MI cable, Type MC cable, or Type AC or Type TC cable and associated metallic and nonmetallic box, raceways, and enclosed enclosures. These supply conductors shall be installed in accordance with the requirements of 300.11.

(2) Supply cords of listed information technology equipment in accordance with 645.20(1) 645.27 shall be permitted.

(3) Interconnecting cables shall be enclosed in a raceway.

(4) Green, or green with one or more yellow stripes, insulated single-conductor cables, 4 AWG and larger, marked “for use in cable trays” or “for CT use” shall be permitted for equipment grounding.

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 564 of 1861
645.30 Disconnecting Means. An approved means shall be provided to disconnect power to all electronic equipment in the information technology equipment room or in designated zones within the room. There shall also be a similar approved means to disconnect the power to all dedicated HVAC systems serving the room or designated zones and shall cause all required fire/ smoke dampers to close. The installation of remote disconnect controls shall be in accordance with (A) through (B).

Exception No. 1: Installations qualifying under the provisions of Article 685.

(A) Remote Disconnect Controls.

(1) Remote disconnect controls shall be located at approved locations readily accessible in case of fire to authorized personnel and emergency responders.

(2) The remote disconnect controls for the control of electronic equipment power and HVAC systems shall be grouped and identified. A single means to control both systems shall be permitted.

(3) Where multiple zones are created, each zone shall have an approved means to confine fire or products of combustion to within the zone.

(4) Additional means to prevent unintentional operation of remote disconnect controls shall be permitted.

Informational Note: For further information, see NFPA 75-2009, Standard for the Protection of Information Technology Equipment.

(B) Critical Operations Data Systems. Remote disconnecting controls shall not be required for critical operations data systems when all of the following conditions are met:

(1) An approved procedure has been established and maintained for removing power and air movement within the room or zone.

(2) Qualified personnel are continuously available to meet emergency responders and to advise them of disconnecting methods.

(3) A smoke-sensing fire detection system is in place.

Informational Note: For further information, see NFPA 72-2010, National Fire Alarm and Signaling Code.

(4) An approved fire suppression system suitable for the application is in place.

(5) Signal wiring under a raised floor is in compliance with 645.32.

III. Signaling Circuits

645.31 Under Raised Floors—General. The following wiring cables shall be permitted:

(1) Type DP cable having adequate fire-resistant characteristics suitable for use under raised floors of an information technology equipment room.

Informational Note No. 1: One method of defining fire resistance is by establishing that the cables do not spread fire to the top of the tray in the “UL Plume Exposure, Vertical Tray Flame Test” in UL 1685-2000, Standard for Safety for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables. The smoke measurements in the test method are not applicable.

Another method of defining fire resistance is for the damage (char length) not to exceed 1.5 m (4 ft 11 in.) when performing the CSA “Vertical Flame Test — Cables in Cable Trays,” as described in CSA C22.2 No. 0.3-M-2001, Test Methods for Electrical Wires and Cables.

Informational Note No. 2: Informational Note: For information on listing requirements for communications raceways and cable routing assemblies, see UL 2024-2011, Signaling, Optical Fiber and Communications Raceways and Cable Routing Assemblies.

(3) Listed interconnecting cables, enclosed in a raceway, that interconnect separate information technology equipment units.

Table 645.31 Cable Types Permitted Under Raised Floors

<table>
<thead>
<tr>
<th>Article</th>
<th>Plenum</th>
<th>Riser</th>
<th>General Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>725</td>
<td>CL2P &amp; CL3P</td>
<td>CL2R &amp; CL3R</td>
<td>CL2, CL3 &amp; PLTC</td>
</tr>
<tr>
<td>727</td>
<td></td>
<td></td>
<td>ITC</td>
</tr>
<tr>
<td>760</td>
<td>NPLF &amp; FPLP</td>
<td>NPLF &amp; FPLR</td>
<td>NPLF &amp; FPL</td>
</tr>
<tr>
<td>770</td>
<td>OFNP &amp; OFCP</td>
<td>OFNFR &amp; OFCR</td>
<td>OFN &amp; OFC</td>
</tr>
<tr>
<td>800</td>
<td>CMP</td>
<td>CMR</td>
<td>CM &amp; CMG</td>
</tr>
<tr>
<td>820</td>
<td>CATVP</td>
<td>CATVR</td>
<td>CATV</td>
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</tbody>
</table>

645.32 Under Raised Floors in a Critical Operations Data System. Signal wiring under a raised floor in a critical operations data system shall be in compliance with 300.22(C), 725.154(A), 770.113(C) and Table 770.154(a), 800.113(C) and Table 800.154(a), or 820.113(C) and Table 820.154(a).

Panel Meeting Action: Accept in Principle

Insert Article 645 here

Table 645.5 Cable Types Permitted Under Raised Floors

<table>
<thead>
<tr>
<th>Article</th>
<th>Plenum</th>
<th>Riser</th>
<th>General Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>336</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>725</td>
<td>CL2P &amp; CL3P</td>
<td>CL2R &amp; CL3R</td>
<td>CL2, CL3 &amp; PLTC</td>
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<td>727</td>
<td></td>
<td></td>
<td>ITC</td>
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<tr>
<td>760</td>
<td>NPLF &amp; FPLP</td>
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</tr>
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<td>CMR</td>
<td>CM &amp; CMG</td>
</tr>
<tr>
<td>820</td>
<td>CATVP</td>
<td>CATVR</td>
<td>CATV</td>
</tr>
</tbody>
</table>

Panel Statement: The panel action represents a complete reorganization of Article 645 and contains the results of the actions on the proposals on Article 645. The intent of this action is to reorder text without changes to the requirements except for the included panel actions noted below. Panel 12 initiates a task group of the following members to review the reorganization:

Chair: Stan Kaufman
Members: Bob Johnson
Bob Johnson
John Kovacik
Todd Lottmann
Joe Salazar
Tom Hedges
Tom Brown

Combining the following panel actions:


Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Negative: 1

Explanation of Negative: CROUSHORE, T.: After further review of proposal 12-109, I disagree with the panel on this proposal. This proposal should have been rejected. I commend the submitter in the attempt to reorganize the information contained with Article 645. However, the existing organization of Article 645 is well understood by the current Information Technology Industry and the electrical industry. The reorganization does not add significant clarity to merit the changes the IT and equipment supply industry will need to make in its service information, installation manuals, listing documents, training information and literature. Further, the submitter omits several informational notes in the reorganization as proposed.

Comment on Affirmative: KAUFMAN, S.: In 645.4 in the panel’s final text, the reference in the exception to 645.10(B) should have been revised to 645.30(B).

12-110a Log #CP1213 NEC-P12
12-111 Log 013 NEC-P12
(645.3(A), 645.3(D))

Final Action: Accept

Submitter: Code-Making Panel 12,
Recommendation: Replace the word “Sections” in “A” with the phrase “The provisions of”.
Replace the word “Section” in the first location in “D” with the phrase “The provision of.”

In the second location where “Section” is referenced replace the word “Section” in “D” with the phrase “The provisions of”.

Substantiation: This corrects the 4.1.2 NEC style Manual violation.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

Comment on Affirmative: JOHNSON, R.: This change should also be applied to 645.3(B).

12-111 Log 03103 NEC-P12
(645.3(B))

Final Action: Accept

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Recommendation: Revise as follows:

(B) Plenums. The provisions of Sections 300.22(C), 725.154(A), 760.53(B)
(2), 760.154(A), 770.113(C), 800.113(C) and 820.113(C) and Tables
Submittor: Stanley Kaufman, CableSafe Inc.
Recommendation: Revise text to read as follows:

This article shall be permitted to provide alternate wiring methods to the provisions of Chapters 1 through 4 for power wiring, Parts I & III of Article 725, 220.15(A) for signaling wiring, and Parts I & V of Article 770, 720.13(C) and Table 720.13(a) for optical fiber cabling when all of the following conditions are met:

Submittor: Article 645 is permitted to modify the wiring methods in Articles 725 and 770. The current text which permits “alternate wiring methods to the provisions of 725.13 for signaling wiring, and 770.113(C) and Table 770.114(a) for optical fiber cabling” is too narrow. If fact, Article 645 modifies wiring provisions that are outside of 725.154, 770.113(C) and Table 770.114(a).

For example, section 645.5(E) Securing in Place alters the requirements for securing for class 2,3 and optical fiber cables. Section 770.24, which is part of Article 770, requires compliance with 300.11, Securing and Supporting.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-128 Log #3288 NEC-P12  Final Action: Accept
(645.5(E))

Submitter: Robert E. Johnson, ITE Safety
Recommendation: Revise text to read as follows:

“the following conditions are met...”

(3) Supply cords of listed information technology equipment are in accordance with 645.5(B).

Submittor: KAUFMAN, S.: 645.5(E)(2) is renumbered to 645.29(1) in proposal 12-109.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-129 Log #3289 NEC-P12  Final Action: Accept
(645.5(E)(6))

Submitter: Robert E. Johnson, ITE Safety
Recommendation: Revise text to read as follows:

Cable type designations shown in Table 645.15 shall be permitted.

Interconnecting cables installed in a raceway.

Cable type designations shown in Table 645.5 shall be permitted.

Interconnecting cables installed in a raceway.

Cable type designations shown in Table 645.5 shall be permitted.

Interconnecting cables installed in a raceway.

Informational Note..."

Submittor: No change in requirements intended. This clause permits several cable type which are more clearly presented in a single list.

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

(6) Cables, other than those covered in (E)(2) and (E)(3) and those complying with (E)(6)(a) and (E)(6)(b), shall be:

(a) Listed as Type DP cable having adequate fire resistant characteristics suitable for use under raised floors of an information technology equipment room.
(b) Interconnecting cables installed in a raceway.
(c) Cable type designations shown in Table 645.5 shall be permitted.
(d) Equipment grounding conductors. Green or green with one or more yellow stripes, insulated single conductor cables, 2 AWG and larger marked "for in cable trays" or "for CT use" shall be permitted and used for equipment grounding.

Informational Note..."

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

(6) Cables, other than those covered in (E)(2) and (E)(3) and those complying with (E)(6)(a) and (E)(6)(b), shall be:

(a) Listed as Type DP cable having adequate fire resistant characteristics suitable for use under raised floors of an information technology equipment room.
(b) Interconnecting cables installed in a raceway.
(c) Cable type designations shown in Table 645.5 shall be permitted.
(d) Equipment grounding conductors. Green or green with one or more yellow stripes, insulated single conductor cables, 2 AWG and larger marked "for in cable trays" or "for CT use" shall be permitted and used for equipment grounding.

Informational Note..."

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

(6) Cables, other than those covered in (E)(2) and (E)(3) and those complying with (E)(6)(a) and (E)(6)(b), shall be:

(a) Listed as Type DP cable having adequate fire resistant characteristics suitable for use under raised floors of an information technology equipment room.
(b) Interconnecting cables installed in a raceway.
(c) Cable type designations shown in Table 645.5 shall be permitted.
(d) Equipment grounding conductors. Green or green with one or more yellow stripes, insulated single conductor cables, 2 AWG and larger marked "for in cable trays" or "for CT use" shall be permitted and used for equipment grounding.

Informational Note..."
Recommendation:
conductor in accordance with Article 250

Final Action: Accept
KAUFMAN, S.: Item 20 in errata No. 70-11-1 has already fixed this error.

Ballot Results:
Number Eligible to Vote: 13
Affirmative: 13

Panel Meeting Action: Accept

Number Eligible to Vote: 13
Affirmative: 13

Recommendation:
Revise text to read as follows:
645.10 Disconnecting Means.
(A) Remote Disconnect Controls.
(2) The remote disconnect means controls for the control of electronic equipment power and HVAC systems shall be grouped and identified. A single means to control both systems shall be permitted.

Substantiation:
The text is actually dealing with the disconnecting means for the control so the text should be changed to make it clear that the disconnecting means should be grouped.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Affirmative: 13

Comment on Affirmative:
KAUFMAN, S.: 645.10(A)(2) has been renumbered to 645.30(A)(2) in proposal 12-109.

12-142 Log #3249 NEC-P12 (645.27 (New))
Final Action: Accept

Submitter: Mark C. Ode, Underwriters Laboratories Inc.
Recommendation: Add text to read as follows:
"645.27 Selective Coordination. Critical Operations Data System(s) overcurrent protective devices shall be selectively coordinated with all supply side overcurrent protective devices for the full range of overcurrents and overcurrent protective device opening times, from load to the maximum available short-circuit current that the system can deliver."

Substantiation: Critical Operations Data Systems are defined as "An information technology equipment system that requires continuous operation for reasons of public safety, emergency management, national security, or business continuity." A lack of selective coordination reduces the reliability of these systems and negates the benefits of redundancy provisions that are typically designed into these systems.

Panel Meeting Action: Accept in Principle
Revise the submitter’s text as follows.
"645.27 Selective Coordination. Critical Operations Data System(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices."

Panel Statement: The panel agrees with the intent of the submitter and has revised the text to align with current language in the code for selective coordination requirements.
Number Eligible to Vote: 13
Affirmative: 12 Negative: 1

Explanation of Negative:
DAVIS, C.: I disagree with the code panel’s decision to add paragraph 645.27 as written. I do not disagree that selective coordination should be required for Critical Operations Data Centers; however, I agree with NFPA 99 agreement to limit the requirement and believe that the NEC should have similar wording to NFPA 99 as follows:
"Overcurrent protective devices serving the critical operations data systems shall selectively coordinate for the period of time that a fault’s duration extends beyond 0.1 second.

Exceptions No. 1: Selectivity shall not be required between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.
Exception No. 2: Selectivity shall not be required between overcurrent protective devices of the same device rating (as required by NEC 70-1)."

The addition of this paragraph as worded by CMP12 typically will add cost beyond 0.1 second.

Comment on Affirmative:
KAUFMAN, S.: 645.27 became 645.23 in proposal 12-109 (645.27 was already used in proposal 12-109).

12-132 Log #3105 NEC-P12 Final Action: Accept (645.6, Informational Note )

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Recommendation: Delete this note.

Substantiation: This note contains a laundry list of whole-article reference violations (NEC Style Manual at 4.1.1). Since it adds nothing to the requirements in this article, it can be deleted. Since cabling outside the IT room must meet the conventional rules of the Code, all the referenced articles unnecessarily apply without amendment.

Panel Meeting Action: Accept
Panel Statement:
Number Eligible to Vote: 13
Affirmative: 13

Comment on Affirmative:
KAUFMAN, S.: 645.6 with the informational note deleted has been renumbered to 645.3(H)(2) in proposal 12-109.

12-134 Log #3241 NEC-P12 (645.10(A)(2))
Final Action: Accept

Submitter: Mark C. Ode, Underwriters Laboratories Inc.
Recommendation: Revise text to read as follows:
645.10 Disconnecting Means.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Affirmative: 13

Comment on Affirmative:
KAUFMAN, S.: 645.10(A)(2) has been renumbered to 645.30(A)(2) in proposal 12-109.

12-173 Log #3290 NEC-P12 (645.10(B)(5))
Final Action: Accept

TCC Action: The Correlating Committee directs that the panel clarify the panel action on this proposal with respect to the location of the revised text.

This action will be considered as a public comment.
Submitter: Robert E. Johnson, ITE Safety
Recommendation: Revise text to read as follows:
(5) Cables installed under a raised floor, other than branch circuit wiring and power cords are installed in compliance with 645.5(2)(D)(2) or 645.5(2)(E)(3), or in compliance.

Substantiation: Correction of grammatical and typographical errors.

Panel Meeting Action: Accept
Panel Statement: This change may possibly be an errata in the 2011 NEC.
Number Eligible to Vote: 13
Affirmative: 13

Comment on Affirmative:
KAUFMAN, S.: Item 20 in errata No. 70-11-1 has already fixed this error.

12-138 Log #3291 NEC-P12 (645.15)
Final Action: Accept

Submitter: Robert E. Johnson, ITE Safety
Recommendation: Revise text to read as follows:
645.15 Grounding. All exposed non-current-carrying metal parts of an information technology system shall be bonded to the equipment grounding conductor in accordance with Article 250 or shall be double insulated...

Substantiation: General reference on grounding not needed.

Style manual violation: 3.6.1.1 Cross references to other sections within the document shall be specific and relevant.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Affirmative: 13

12-139 Log #3447 NEC-P12 (645.15)
Final Action: Accept

Submitter: Michael J. Johnston, National Electrical Contractors Association
Recommendation: Add a new last sentence to read as follows:
Any protective devices (ampere rating) installed for information technology equipment shall be installed in accordance with Section 250.54.

Substantiation: Confusion still exists about what constitutes an isolated ground as it relates to computer installations. Installing a separate electrode connection to the earth that is not connected to the equipment grounding conductor of the branch circuits and feeders supplying information technology equipment is not a “Code-compliant” isolated ground and is a violation of the general requirements in 250.4(A)(5) and (B)(4) as well as 250.54. This new sentence provides clear direction and correlation for users about required connections between auxiliary grounding electrodes and equipment grounding conductors. The earth should not ever serve as an effective ground fault current path.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Affirmative: 13

Ballot Results:
Number Eligible to Vote: 13
Affirmative: 13

12-142 Log #3242 NEC-P12 (645.25)
Final Action: Accept

Submitter: Mark C. Ode, Underwriters Laboratories Inc.
Recommendation: Delete the word “performed” and replace with the word “provided” as follows:
645.25 Engineering Supervision. As an alternative to the feeder and service load calculations required by Parts III and IV of Article 220, feeder and service load calculations for new or existing loads shall be permitted to be used if performed by qualified persons under engineering supervision.

Substantiation: The word “performed” is not appropriate for the actions required in this text and is more appropriately described as “provided.”

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Affirmative: 13

Panel Statement:
Number Eligible to Vote: 13
Affirmative: 13

Comment on Affirmative:
DAVIS, C.: I disagree with the code panel’s decision to add paragraph 645.27 as written. I do not disagree that selective coordination should be required for Critical Operations Data Centers; however, I agree with NFPA 99 agreement to limit the requirement and believe that the NEC should have similar wording to NFPA 99 as follows:
"Overcurrent protective devices serving the critical operations data systems shall selectively coordinate for the period of time that a fault’s duration extends beyond 0.1 second.

Exceptions No. 1: Selectivity shall not be required between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.
Exception No. 2: Selectivity shall not be required between overcurrent protective devices of the same device rating (as required by NEC 70-1)."

The addition of this paragraph as worded by CMP12 typically will add cost beyond 0.1 second.
electric vehicles are electric vehicles. Fine.
That is not -- that is a requirement that's part of the requirement of the Code.
In the other one, the electric vehicle connector is part of the electric vehicle coupler.
That is not part of the definition. The definition is above. And it can be connectors, a device that by insertion into the electric vehicle inlet establishes electric connection. There's a difference between defining something and then starting to put requirements on what it can or cannot do. Thank you.
MR. BELL: Thank you. Any further discussion on the floor? Mr. Johnston, any additional comments?
MR. JOHNSTON: I have no additional comments, Mr. Chair.
MR. BELL: With that, we'll move to vote on the motion on the floor which is to accept Comments 12-21 and 12-22. Press 1 if you're in favor of the motion, and press 2 if you're opposed to the motion. Vote now. 5 seconds.
Voting is closed. Motion fails.
With that, we'll move on to Motion Sequence Number 70-21. Microphone 3.
MR. WYSOCKI: Mr. Chairman, fellow fire
protection professionals, my name is Thomas Wysocki
of Guardian Services, Incorporated. I am a member
and an Immediate Past Chairman of the NFPA
Technical Committee on Electronic Computer Systems
responsible for NFPA Standards 75.

It is on behalf of the Technical Committee
that I move acceptance of Proposal 12-129 and
dependent Comment 12-60.

MR. BELL: Thank you. Is there a second?

A VOICE: Second.

MR. BELL: Please proceed.

MR. WYSOCKI: Acceptance of Proposal 12-129
would remove from the NEC a requirement to stop air
flow through a data center upon detection of smoke
under the raised floor of a data center.

Ladies and gentlemen, a sure way to
disable an entire data center is to shut down
cooling air flow. Within minutes, temperatures in
this space could rise as much as 40 degrees and all
servers in the data center could cease to operate
due to overheat. Data in process could be lost;
functions such as life support, emergency services,
and security, which are often provided by IT
equipment, would cease; and irreparable damage to

the IT equipment could result from the overheat
condition.

Now smoke detectors commonly used in
Page 105
modern data centers are capable of sensing very small quantities of smoke and can detect a fire in its incipient stage. The result of shutting down air flow within a data center in response to detection of smoke could be worse than the potential damage due to the detected fire.

Cooling air flow needs to be maintained as long as the IT equipment is operating. If conditions warrant shutdown of IT equipment, time for orderly program shutdown must be provided while cooling air flow is continued.

During 2012, the NFPA Technical Committee processed the TIA which removed this identical language from the NFPA Standard. The TIA was issued by the Standards Council in May of 2011. Acceptance of this motion will permit data center designers to work with operations personnel to implement appropriate sequences of fire detection and air flow control based on detector response and operational work requirements. It will align Article 645 with the provisions of the NFPA 75 Standard on Electronic Computer Systems and the TIA of 2012 as issued by the Standards Council.

On behalf of the NFPA Technical Committee on Protection of Electronic Computer Systems, I ask that you support this motion. Thank you.

MR. BELL: Thank you. Mr. Johnston?

MR. JOHNSTON: Thank you, Mr. Chair. I would like to once again defer to the Chair of NEC Code
Panel 12, Mr. Tim Croushore.

MR. CROUSHORE: Thank you. Hello. My name is Timothy M. Croushore. I work for FirstEnergy. I represent the electric utility industry through the Edison Electric Institute. I am the Chair of National Electrical Code-Making Panel 12.

I rise to speak in support of this motion. I would recommend that the Association membership speak in support of the motion.

As Chair of Code-Making Panel 12, it is my opinion that the NFPA regulations governing committee projects were followed during both the proposal and comment stage by the Technical Committee. However, in my opinion, the Technical Committee may not have landed in the proper place with this issue.

So this is going to take some explaining. It's like the Ricky Ricardo response to, Lucy, you got some explaining to do.

Proposal 12-129 can be found on Page 70-685 in the Report on Proposals. It is a properly balloted proposal that comes from the NFPA Technical Committee on Electronic Commuter Systems who's responsible for the NFPA 75 document, The Standard of Protection for Information Technology Equipment. Note the information about the ballot and the voting and the names of the individuals involved because this is important to why and where
The issue of the proposal involves removing a long-standing requirement in 645.5(E)(4), second sentence that states, "The ventilation shall be so arranged with the approved smoke detection devices that upon detection of fire or products of combustion in the under floor space, the circulation of air will cease."

Code-Making Panel 12 began to understand the ventilation issue when Proposal 12-114 on Page 70-682 of the ROP was being discussed. This proposal had come first on our docket of work.

Mr. Stephen McCluer who had previously requested of the Chair to address CMP 12 about his proposal, 12-114, was granted ten minutes to speak and answered questions about his proposal as permitted by the Regulations Governing Committee Project. Mr. McCluer is a member of the NFPA Technical Committee on Electronic Computer Systems and was aware -- and aware of and voted affirmatively on Proposal 12-129 in the NFPA 75 Committee.

Mr. McCluer spoke and made us aware of his issues. During the deliberation of CMP 12 on Proposal 12-114, Dr. Stanley Kaufman, who is also a member of CMP 12 and the Technical Committee for NFPA 75, brought up the opposing view. Note that he previously balloted negatively on creating Proposal 12-129 from the Technical Committee, and the panel members listening to the opposing view agreed.
were concerned about the completely -- about
completely removing the ventilation requirement
from 645-5(E)(4).

After further discussion, a resolution was
offered that CMP 12 accepted in principle
Proposal 12-114, which created a new exception to
645.4(2) that essentially resolves some of the
ventilation issues for the critical operations data
systems as inspired by Mr. McCluer's proposal.

When the panel docketed Proposal 12-129,
it was rejected, and the statement pointed back to
the action on 12-114 in which the panel believed
that it had resolved the issue.

During the comment stage, CMP 12 received
one comment, Comment 12-60, to delete the newly
created exception. CMP 12 rejected this comment
because it would have deleted the fix created
during the proposal stage. There were no comments
on the original Proposal 12-129 from the NFPA 75
Technical Committee or its members.

Therefore, in my opinion, CMP 12 acted
consistently and in accordance with the
regulations.

The outcome of the NITMAM, or the
Certified Amending Motion, does two things. It
moves forward Proposal 12-129 which deletes the
second sentence that states about the ventilation,
and it also moves forward Comment 12-60 that
deletes the newly created exception to 645.4(2) found in Proposal 12-114.

After reviewing the ventilation requirements and the options that are contained in NFPA 75 and discussing the course of events with Mr. Wysocki, who had just spoken -- he is also the former Chair of the NFPA 75 Committee and the submitter of the NITMAM -- I believe that this action and motion are appropriate. Therefore, I would recommend that the Association membership support this Certified Amending Motion.


DR. KAUFMAN: I am Dr. Stanley Kaufman. I am speaking in opposition to the motion. I was the negative vote on NFPA 75, and I was with the unanimous members of Panel 12 and their actions.

When Mr. Wysocki submitted his proposal, he raised a very important issue, that is, about shutting the air down, and Panel 12 responded by putting an exception as you just heard. The exception read, "Where information and technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the zone."

So Panel 12 agreed for relief provided you're a critical operations data center.
If you then go to 645.10 and look at the requirements, there are five conditions to the critical operations data center. I would like to read you one. "An approved procedure has been established and maintained for moving power and air movement within the room or zone."

So basically, if you're a critical operations data system and you have planned ahead what you want to do, you can do what you think is best.

In response to the Panel 12 action, Panel 12 got two comments from Mr. Wysocki which basically said delete what you did before and he did not suggest anything to wordsmith what we did. The panel rejected the comments unanimously; and, in their statement, pointed out that references to NFPA 75 are an informational notice. As you all know, the National Electrical Code is not permitted to have mandatory requirements that point to another standard. So although we have numerous, in fact, five informational notices referred to NFPA 75, they're not enforceable.

I urge you to support the Panel 12 action which was unanimous and reject this motion.

MR. BELL: Thank you. Microphone 2.

MR. ROBIN: Mark Robin, representing the Fire
Suppression Systems Association, the FSSA. The FSSA supports this motion. Thank you.

MR. BELL: Microphone 3.

MR. WYSOCKI: Thomas Wysocki, Guardian Services, representing the NFPA Technical Committee on Electronic Computer Systems, speaking in favor of the motion.

I would like to point out that the relief granted to critical operations data centers does not extend to all data centers. Some of the provisions that are required for a critical operations data center in the NEC would not necessarily apply to every data center, and yet the problem was shutting down air flow upon detection of any smoke in the subfloor applies across the board.

Further, this provision for shutting down air flow did not appear in the NEC until 2002, and this was put in there not in response to any technical problem with continuing air flow after detection of smoke. It was put in in response to some problems that surfaced in certain jurisdictions, particularly in Massachusetts, with inspectors treating the subfloor areas as plenums and, therefore, requiring plenum cable there and not allowing the relief which the NEC Article 645 permits.

There was a decision back in 1991 by the
Standards Council which clearly placed the jurisdiction over the contents of a subfloor with NFPA 75, not 98. So it was quite appropriate that 75 should have jurisdiction over the contents and the ventilations. With respect to the electrical wiring, NFPA 75 defers to Article 645 and calls out Article 645.

And that is all I have for right now until Mr. Kaufman -- Dr. Kaufman responds apparently. Thank you.

MR. BELL: Thank you. Microphone 5.

MR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for NAFRA, in opposition to the motion.

I'm a little bit confused as to why Mr. Croushore, the Chairman of the Panel 12, spoke in support of the motion. Panel 12 voted unanimously to reject Proposal 12-129 which this action seeks to accept. There was no opposition, no comment, and the substantiation said see the panel action statement on 12-114. And 12-114 was unanimously approved by Panel 12. And 12-114 does provide the relief exception for critical operation systems that NFPA 75 members wished.

So everything has been done appropriately, and I see no reason to grant this, and I see no reason that Panel 12 members -- nothing has changed that would require them to change their mind. So I urge you to oppose this motion.

DR. KAUFMAN: I am Dr. Stanley Kaufman with CableSafe, a member of Panel 12. I'm speaking against the motion.

I agree a hundred percent with Tom Wysocki that this only applies to critical operations data systems. That's the completed -- that is the intent of the Panel 12. We discussed that and that's exactly what the panel wanted. They wanted the protections that are in the critical operations data system. They did not want to give carte blanche to do what you want anywhere you want any time you want.

MR. BELL: Thank you. Microphone 3.

MR. WYSOCKI: Thomas Wysocki, Guardian Services, speaking in favor of the motion.

This goes beyond simply shutting down air flow and possibly overheating IT equipment. It impacts the efficacy of the fire detection and fire suppression systems that NFPA 75 requires for data centers. And by the way, NFPA 75 is now recognized in the Life Safety Code.

Fire detection is often designed to detect fires in the incipient stage, and the positioning of detectors takes into account the air flow. As a matter of fact, air flow has increased so much and the various configurations for handling air flow in data centers have evolved to a point where there is
currently a fire protection research foundation project to study the effects of air flow and help us optimize the positioning of smoke detectors within data centers.

Now when we shut down air flow, we impact the movement of smoke through the space, and we impact it in a way that is not accounted for in the positioning of the detectors. Detectors are positioned within the space taking into account continuous air flow. Then depending on the level of alarm, and the number of alarm levels can be implemented in these modern detection systems, there are appropriate actions that could be taken, such as first level of alarm would require trained personnel to investigate, depending on the particular application. Second level of alarm might start to de-power equipment. Third level of alarm might discharge a clean agent fire suppression system.

It's not a one-size-fits-all situation, and NFPA 75 has long recognized this. We rejected the idea of automatic shutdown of air flow back in 2001. It was picked up in 2009 inadvertently as a result of the reference policy of NFPA and, as soon as we saw it in there, we removed it by means of a TIA. And the appropriate place for these decisions is not in the NEC, but it should be based on the data center design and operational characteristics working in accordance with NFPA 75.
MR. BELL: Thank you. Microphone 2.

MS. NELISSEN: Tina Nelissen with Amerex Corporation. I'm speaking for the motion.

FEMA that I'm a representative of on the Technical Committee for NFPA 75 supports the motion.

MR. BELL: Thank you. Any further discussion? Microphone 2.

MR. CROUSHORE: Thank you, Mr. Chairman. I would like to discuss which I thought was pretty clear in my long --

MR. BELL: Your name and affiliation.

MR. CROUSHORE: My name is Timothy Croushore. I work for FirstEnergy. I represent the electric utility industry through the Edison Electric Institute. I am the Chair of National Electrical Code-Making Panel 12.

I would like to address why I landed where I did and why I believe that the CMP 12 may not have landed, and this is my opinion. I thought I addressed this before and addressed the previous comments.

If you look at Proposal 12-129, okay, it was voted on by the NFPA 75 Technical Committee to 1. The only opposing was Dr. Kaufman. On Code-Making Panel 12, I had two representatives from the NFPA 75 Committee, one being Mr. McCluer,
two being Dr. Kaufman, okay. After Mr. McCluer speaks about his proposal, he cannot engage in the deliberation of the discussion, okay. So what happens is only the Committee heard the negative during the deliberation.

So I believe that CMP 12 may not have landed in the proper place. That is why I support the motion.

MR. BELL: Thank you. Further discussion?

Seeing no one at the microphone, we'll go to the motion on the floor which is to accept Proposal 12-129 and dependent Comment 12-60. Press 1 if you're in favor of the motion and 2 if you're opposed. Vote now. 5 seconds.

Voting is closed. Motion passes.

We'll move on to Sequence Number 70-22.

Is there a motion? Microphone 2.

DR. KAUFMAN: Yes. I am Dr. Stanley Kaufman. I'm here for Ralph Transue as a designated representative. I move to accept Comment 12-65.

MR. BELL: Okay. The motion on the floor is to accept Comment 12-65, and you are a designated representative. Is there a second?

A VOICE: Second.
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 19, 2013

AMENDMENT (70-21)

Document: NFPA 70, *National Electrical Code*

**Group Amending Motion:** To Accept Proposal 12-129 and Comment 12-60

**CC FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS** achieved the necessary $\frac{3}{4}$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is $9 \ [12 \text{ (eligible to vote)} - 0 \text{ (ballots not returned)} - 0 \text{ (abstention)} = 12 \times 0.75 = 9]$

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</tr>
<tr>
<td>0 Abstain</td>
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**CC Action:** PASS

**CMP 12 FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary $\frac{2}{3}$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is $8 \ [13 \text{ (eligible to vote)} - 1 \text{ (ballot not returned)} - 0 \text{ (abstentions)} = 12 \times 0.66 = 7.92]$

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<tr>
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<td>5 Do Not Agree (Hedges, Holmes, Johnson, Kaufman, Menig)</td>
</tr>
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<td>0 Abstain</td>
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**CMP Action:** FAIL
July 12, 2013

TO:

NFPA Standards Council
National Fire Protection Association
Batterymarch Park
Quincy, MA 02269

Regarding: Appeal on Amendment 70-21 on the Proposed 2014 edition of NFPA 70

Appellant:

Thomas Wysocki TC on Electronic Computer Systems (ELT-AAA)

Requested Relief: The appellant requests that the Standards Council uphold the action of the NFPA members in attendance at the June 2013 Technical Committee Report Session and adopt Amendment 70-21 on the Proposed 2014 edition of NFPA 70. Proposal 12-129 and the dependent Comment 12-60 would thus be adopted.

The subject requirement: "The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease." would be deleted from NEC Article 645.4 E 4.

NEC Article 645.4 E 4 would be amended as follows:

645.4(E) (4) Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

Grounds for Appeal:

The subject requirement is

1) outside the scope of the NEC and within the responsibility of the Committee on Electronic Computer Rooms;
2) technically incorrect requiring an operational feature which is inconsistent with good fire protection and operational requirements for today’s data centers;
3) contrary to the direction of the NFPA TC on Electronic Computer Systems as formally expressed in the ballots on TIA 1042, Proposal 12-129 and its related NITMAM;
4) contrary to TIA 1042 (March 2012).

The following summary is a brief history of the subject requirement and of the attempts by the Committee on Electronic Computer Rooms to have the requirement removed from the NEC.
History of Actions Related to Subject Requirement:

1991: Standards Council decision 89-50 (April 1991) clarified that jurisdiction of combustibles in raised floor areas of computer rooms should be the responsibility of the Committee on Electronic Computer Rooms and not under the jurisdiction of NFPA 90A.

1998: CMP 12 rejected the subject requirement (Proposal 12-115 Log 3217) for NFPA 70 – A98. CMP 12 stated “The substantiation does not identify a technical problem with the present code.” in unanimously rejecting the proposal.

CMP 12 rejected the subject requirement acting on Comment 12-59 Log 3162. CMP 12 stated “Since the original proposal establishes special criteria for a specific occupancy, the original proposal more appropriately should be proposed to be included in the occupancy standard for computer rooms, NFPA 75, rather than the NEC, an installation standard.”

2002: The subject requirement was added in the 2002 edition of the NEC by action of CMP 12 on (Log #4254) 12-100. Log #4254 is essentially identical to Log 3217 in the A98 ROP which was rejected for lack of technical justification. The requirement was not added for any technical reason – it was not added for purposes of required fire protection. It was added in response to misinterpretation by some building inspectors to treat raised floors in computer rooms as NFPA 90A plenums and thus require plenum cable in these spaces. In approving this new requirement as part of the NEC, CMP 12 failed to acknowledge SC decision 89-50 directing that NFPA 75, not NFPA 90A, has responsibility for combustibles in raised floor areas in computer rooms as well as the substantiation used in 1998 in rejecting Comment 12-59 Log 3162.

Subject requirement was rejected by NFPA 75 TC during preparation of NFPA 75 2003 Edition.

2009: Subject provision was added to NFPA 75 without direct action of the NFPA 75 technical committee when the NFPA extraction guidelines were applied during final editing of the document.

As soon as the unintended addition to the standard was recognized, NFPA 75 TC began action to remove the subject requirement from NFPA 75. The NFPA 75 TC processed and unanimously approved TIA 1042 to delete the subject requirement from 2009 NFPA 75.

TIA 1042 was issued by the Standards Council in March 2012. The substantiation for this TIA includes technical and jurisdictional arguments which are applicable in supporting this appeal.

2011: In November 2011, NFPA 75 Technical Committee voted by a margin of 18 affirmative 1 negative (S Kaufman) to submit Proposal 12-129 to remove the subject requirement from the NEC. CMP 12 rejected the Proposal 13 – 0.

2012 Thomas Wysocki submitted Comment 12-61 which supported the NFPA 75 technical committee’s Proposal 12-129 and expanded the substantiation offered with Proposal 12-129. CMP 12 rejected the Comment 13 – 0.

2013 May: NFPA 75 Technical Committee voted to file a NITMAM to move their Proposal 12-129 at the Association Technical meeting. Vote was 24 in favor 1 negative (S Kaufman).
Amendment 70-21 was moved on behalf of NFPA TC on Electronic Computer Systems (ELT-AAA) by TC member Thomas Wysocki. Amendment 70-21 was approved by the NFPA membership at the June 2013 Technical Committee Report Session by a substantial margin.

Amendment 70-21 narrowly missed approval by CMP 12 with a vote of 7 in favor of acceptance and 5 opposed. Considering that Proposal 12-129 and Comment 12-60 had been unanimously rejected by CMP 12 during development of the NEC, the fact that a majority of the CMP 12 members now favor of acceptance of the proposal indicates that the arguments set forth during the Technical Committee Report Session are strong. Thus the proposal is worthy of favorable consideration by the Standards Council.

References:

Standards Council decision 89-50 (April 1991)
70-A98-ROP Proposal 12-115 Log 3217
70-A98-ROC Comment 12-59 Log 3162
70-A2001-ROP (Log #4254) 12-100
TIA 1042 Submittal and Ballots (NFPA 75)
70-A2013 Report on Comments, Comment 12-61 Log 1459 NEC-P12
Transcript of Association Technical Meeting June, 2013

Conclusion:

I do not require a hearing at the Standards Council meeting. NFPA 75 Staff Liaison Jonathan Hart is capable of providing any additional input which the Standards Council may require.

In closing, please note that this issue is considered to be extremely important – so much so that removal of the subject language from the 2009 Edition of NFPA 75 was considered unanimously by the NFPA 75 TC to be of an emergency nature requiring a TIA to remove the language. The question of jurisdiction over the operational features in a data center for life safety and fire protection is likewise important as we all continue to work for the mission of NFPA.

My participation on the TC on Electronic Computer Systems is not funded by any third party and I do not represent any third party – neither is my action in filing this appeal funded by any third party.

Submitted by

Thomas Wysocki
Guardian Services Incorporated
Member of TC on Electronic Computer Systems (ELT-AAA)

cc: TC on Electronic Computer Systems (ELT-AAA)

Attending the hearing on the complaints were: J. Reed, DuPont, W. Schmoldt, Chairman of the Air Conditioning Committee and J. Degenkolb, consultant to the Fluoropolymer Division of the Society of the Plastics (SPI), in support of the DuPont complaint; J. Tuthill, Prime Computer, Inc., W. Hanrahan, Computer and Business Manufacturers Association (CBEMA), R. Wilson, consultant to CBEMA, R. Swartz, Chairman of the Electronic Computer Systems Committee, J. Humphrey, Digital Equipment Corp., R. Harris, Underwriters Laboratories, representing NEC Code-Making Panel 12 and R. Riley, IBM, in support of the complaints of Prime Computer, CBEMA and the Chairman of the Electronic Computer Systems Committee.

Also in attendance were: J. Dubetsky and G. Zeidenberg, IBM, T. Feindel, Digital, R. Wagner, M. McLaughlin and J. Lizotte, Montrose Products Co., F. Maglio, Bull HW Information Systems, Inc., A. DiManno, Hartford Ins., P. Horton, Allied Tube & Conduit and P. Flemister, Counsel to Allied, R. Bielen, NFPA Staff Liaison to the Electronic Computer Systems Committee, and P. Schram, NFPA Staff Liaison to the National Electrical Code Committee.

After the hearing, the Council reviewed and considered all of the information available to it regarding the complaints, including the discussion and action taken at the Association meeting, and the discussion that took place during the hearing.

Based on its review of all information available, the Council voted to deny the complaint of DuPont and uphold the complaints of Prime Computer, CBEMA and the Chairman of the Electronic Computer Systems Committee by adopting Comment 90A-25 to 2-3.10.5(a) of the proposed 1989 edition of NFPA 90A, Air Conditioning and Ventilating Systems to add the following exception:

Exception (2) Raised floors, intermachine cables, electrical wires and optical fiber cables in computer/data processing rooms shall be installed in accordance with NFPA 75, Electronic Computer/Data Processing Equipment and Article 645 of NFPA 70, National Electrical Code.
89-50 (Cont'd)  In rendering this decision, the Council determined that there appears to be no fire record in raised floor areas of computer/data processing rooms and therefore there is insufficient technical justification for the requirements of 2-3.10.5(a) of NFPA 90A for these areas.

The Council also voted to request the Air Conditioning Committee and the Electronic Computer Systems Committee to make recommendations to the Council on which Committee should have jurisdiction over combustibles in raised floor areas of computer rooms, for consideration by the Council at its October 1989 meeting.

89-51  The Council considered the complaint of the American Hotel and Motel Association requesting that the Council overturn the Committee and Association action of accepting Comment 701-9 on 1-1.3 of the proposed 1989 edition of NFPA 701, Flame-Resistant Textiles and Films as adopted at the 1989 NFPA Annual Meeting.

Based on its review of all information available, the Council voted to uphold the complaint and issue the 1989 edition of NFPA 701, Flame-Resistant Textiles and Films with a Note to 1-1.3 containing the information previously contained in the footnote to 1-1.3 of the proposed 1989 edition of NFPA 701, as published in the 1989 Annual Meeting Technical Committee Reports, because the information is explanatory and is therefore not appropriate as mandatory text in a standard.


Attending a hearing on the complaint were: D. Dorini, Gulfstream Pump and Equipment Co., in support of the complaint. Also in attendance was M. DeLerno, a member of the Fire Pumps Committee.

At the hearing, the complainant raised issues relative to the addition of a proposed unit responsibility statement to the proposed 1991 edition of NFPA 20, Centrifugal Fire Pumps.

After the hearing, the Council reviewed and considered all of the information available to it regarding the complaint, including the previous decision of the Council to remove the unit purchase requirement from NFPA 20, and the discussion that took place during the hearing.
MINUTES

STANDARDS COUNCIL MEETING
SAN FRANCISCO, CA
April 11-12, 1991

Members Present

Dr. John L. Bryan, Chair
Arthur E. Cote, Secretary
Leona A. Nisbet, Recording Secretary
Kathleen H. Almand
James R. Beyreis
Russell P. Fleming
Elliott Guttman

Richard E. Hughey
Gerald H. Jones
Donald J. Keigher
Albert J. Reed
J. Phillip Simmons
Walter Smittle, III
Gary M. Taylor

Others Present

John L. Jablonsky, American Insurance Services Group,
(Chairman Elect)
James M. Shannon, NFPA General Counsel

89-50 The Council reviewed correspondence from the Chairman of the
Air Conditioning Committee on the jurisdiction of combustibles in
raised floor areas of computer rooms and voted that this
jurisdiction should be the responsibility of the Committee on
Electronic Computer Systems as recommended by the Chairmen
of the Air Conditioning and Electronic Computer Systems
Committees.

89-60 The Council voted to approve the proposed membership of the
Committee on Alternative Protection Options to Halon as shown
in Attachment 91-31.

Publishers of the National Fire Codes® and National Electrical Code®
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through research, codes and standards, technical advisory services, and public education since 1896.
NFPA 70 — A98 ROP

Supplemental Agenda July 29-August 1, 2013

Panel Action: Reject.

Panel Statement: These requirements are conditions that permit the installation of wiring in accordance with Article 645.

Number of Panel Members Eligible to Vote: 13

Vote on Panel Action: Affirmative 13

(12-113 - (645-5(d)(3)) Accept

Submitter: Larry Pelletto, Integrated Support Systems

Recommendation: As currently written and receptacles associated with the data processing equipment shall be permitted.

Proposed change and receptacles associated with the information technology equipment shall be permitted.

Substantiation: The change will keep the equipment identification consistent with the section title. There is not a definition or a direct section reference for "data processing equipment.

Panel Action: Approve.

Number of Panel Members Eligible to Vote: 13

Vote on Panel Action: Affirmative 13

(12-113 - (645-5(d), FPIN-New)) Reject

Submitter: Loren Caudill, DuPont

Recommendation: Revise as follows:

(5) Cables, other than those covered in (2) above, shall be listed as Type DP cable type CMP.

FPIN: One method of defining fire performance is by establishing that cables do not have a flame spread greater than 5 ft, a peak optical density not greater than 0.5 and an average optical density not greater than 0.15 when tested in accordance with NFPA 262.

Substantiation: Current cables have very poor fire performance (flame spread and smoke) and contribute to electronic equipment failure when equipment is exposed to fire.

Panel Action: Reject.

Panel Statement: The submitter has not provided any technical substantiation to support the proposal.

Number of Panel Members Eligible to Vote: 13

Vote on Panel Action: Affirmative 13

(12-116 - (645-5(d)(5)), Exceptions No 1, 2 and 3) Accept in Part

Submitter: Charles M Trout, Main Electric Co., Inc

Recommendation: Eliminate Exceptions No 1, No 2, No 3 and add to the present text:

"This requirement shall not apply where the interconnecting cables are enclosed in a raceway. Interconnecting cables listed with equipment manufactured prior to July 1, 1994, shall be permitted to be reinstalled with that equipment. Other cable type designations that satisfy the above requirement are Type TC (Article 940), Types CL2, CL3, and FTC, Types Type NFPE and FLP (Article 760), Types CM and OFP (Article 770), Types CM and MP (Article 860), Type CATV (Article 870). These designations shall be permitted to have an additional letter P or R or G.

Substantiation: The revised text will provide for the elimination of the exceptions and install the wording into the text in positive language.

Panel Action: Accept in Part.

Do not accept the part to identify the subsections as No 1, No 2, and No 3. Identify the sections as "a", "b" and "c"

Panel Statement: The exceptions have been eliminated and incorporated within the body of the code.

Number of Panel Members Eligible to Vote: 13

Vote on Panel Action: Affirmative 13

(12-117 - (645-5(d)(5), Accept

Submitter: Larry Pelletto, Integrated Support Systems

Recommendation: As currently written applicable for use under raised floors of a computer room.

Proposed change applicable for use under raised floors of an information technology equipment room.

Substantiation: The change will keep the equipment identification consistent with the section title. There is not a definition or a direct section reference for "computer room.

Panel Action: Accept.

Number of Panel Members Eligible to Vote: 13

Vote on Panel Action: Affirmative 13

982

July 22, 2013

Supplemental Agenda July 29-August 1, 2013
Page 589 of 1861
for installation on the floor or under a raised floor as described in Section 5-4.

(5-2.2) Cords. Approved flexible cord and plug assemblies used for connecting computer equipment to the branch circuits to facilitate interchange shall not exceed 15 ft (4.57 m) in length.

(5-2.3) Filter. Filter(s) for use in the computer system shall be of an individual unit basis. They shall be arranged in such a way that they can be readily removed, inspected, cleaned, or replaced when necessary.

(5-2.4) Liquids. If the design of the unit is such that oil or equivalent liquid is required for lubrication, cooling, or hydraulic purposes, it shall have a closed-cup flash point of 300°F (149°C) or higher. If fire-sprinklered, the fire protection shall be of a sealed construction, incorporating automatic pressure relief devices.

(5-2.5) Acoustical Materials. All sound-deadening material used inside of computer equipment shall be of such material, or so arranged, that it is not exposed to fire damage to the unit or the potential of fire propagation from the unit.

5. (3-1)* Building Construction.

(5-1.1) The computer area shall be housed in one of the following:

(a) A building constructed in accordance with NFPA 220, Standard on Types of Building Construction, Type I (443) or (352), or Type II (222) or (111).

(b) A single story building constructed in accordance with NFPA 220, Standard on Types of Building Construction, Type II (300).

Exception: A computer area that is housed in a fully sprinklered building in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems.

(5-1.2)* Protection for the building housing the computer area shall be provided where it is subject to damage from external exposure.

(5-1.3) The computer area shall be separated from other occupancies within the building (including area or other open-space construction) by fire-resistant rated construction. The computer room shall be separated from other occupancies in the consecutive fire-resistant rated construction. The fire resistance rating shall be commensurate with the exposure but not less than one hour for both. (See Appendix B, 5-1.5.1.1, Location of Computer Area within the Building.)

(2-2)* Location of Computer Area within the Building.

(3-1.1) The computer area shall not be located above, below, or adjacent to areas or other structures where hazardous processes are located unless adequate protective features are provided.

(3-2) Computer Area Interior Construction Materials.

(3-3.1) All interior wall and ceiling finishes in the computer area shall have a Class A rating. (See NFPA 101®, Life Safety Code®.)

Exception: Interior wall and ceiling finishes in fully sprinklered computer areas need not be permitted to be Class B.

(3-3.1.1) Interior floor finishes used in computer areas shall be Class I. (See NFPA 101®, Life Safety Code®.)

Exception: Interior floor finishes in fully sprinklered computer areas shall be permitted to be Class II.

(3-1.2) Exposed cellular plastics shall not be used in computer area construction.

Exception: Plastics within a fire-resistant assembly are permitted.

(3-1.2)* A structural floor where a computer system is located, or that supports a raised floor installation, shall incorporate provisions for drainage from domestic water leakage, sprinkler operation, coolants leakage, or firefighting operations.

(3-4) Interiors.

(3-4.1) Structural supporting members for raised floors shall be of non-combustible material.

(3-4.2) Decking for raised floors shall be non-combustible.

Exception No. 1: Pressure-impregnated, fire-retardant treated lumber having a flame-spread rating of 25 or less shall be permitted. (See NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials.)

Exception No. 2: Wood or similar core material that is exposed on the top and bottom with sheet, cast, or extruded metal, with all openings or cut-out areas formed with metal or plastic clips or grommets so that none of the core is exposed, and that has an assembly flame-spread rating of 25 or less shall be permitted. (See NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials.)

(3-4.3) Access sections or panels shall be provided in raised floors so that all the space beneath is accessible.

(3-4.3.1) Floors needed to provide access to the underfloor space shall be located in the room and the location shall be well marked.

(3-4.4) Electric cable openings in floors shall be made smooth or shall be otherwise protected to preclude the possibility of damage to the cables.

(3-5) Cable Openings and Other Penetrations.

(3-5.1) Cable openings or other penetrations through required fire-rated assemblies shall be fire stopped with a properly installed listed fire-stopping material that has a fire resistance rating equal to the fire resistance rating of the penetrated barrier when tested with a minimum positive furnace pressure differential of 0.1 Pa at a pressure of 0.25 Pa under ASTM E814, Standard Method of Fire Tests Through-Penetration Fire Stops.

(3-5.2) Where any openings (e.g., pass-throughs or windows) are installed in any fire-rated wall of a computer area, each opening shall be equipped with an automatic fire-rated shutter. The shutter shall be operated automatically by the presence of either smoke or fire on either side of the wall.

Exception: Fire-rated windows of equal rating to the wall shall be permitted.

(5-6) Air Space. Where the air space below a raised floor or above a suspended ceiling is used to recirculate computer room/computer area environmental air, the wiring shall conform to Article 645 of NFPA 70, National Electrical Code®.

SUBSTANTIATION: There is a need for a correlation between NFPA 70 and NFPA 75 as outlined in the Standards Council Guideline on Potential Jurisdictional Issues Between Committees Developing Occupancy Standards and Committee Developing Installation Standards. The material may have to be reconsidered to suit the NEC format. This material is to be identified as extracted text from NFPA 75, 1995 edition.

PANEL ACTION: Hold.

PANEL STATEMENT: Although correlation between NFPA 70 and NFPA 75 is needed, this comment is on a proposal that was editorial in nature and it contains new technical material which, if adopted, would not be subjected to public review and comment before publication. Therefore, the material will be held for further study, and during the next code cycle efforts will be made to propose a modified Section 645-2 which is better correlated between the NEC and NFPA 75, and is in accordance with the Standards Council Guidelines on Potential Jurisdictional (Scope) Issues Between Committees Developing Occupancy Standards and Committee Developing Installation Standards. Based on this public comment, the NEC Technical Correlating Committee is requested to establish a joint NEC CMP 15 and NFPA 75 Committee Task Group to address this subject.

NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 13

VOTE ON PANEL ACTION:

AFFIRMATIVE: 13

(5-5-9) - (645-2-4), FPIN: Accept

Note: The Technical Correlating Committee directs that Proposal 12-110 be reported as "Accept". The material must be deleted as it is outside the Scope of the NEC.

SUBMITTER: National Electrical Code Technical Correlating Committee

COMMENT ON PROPOSAL NO: 12-110

RECOMMENDATION: Technical Correlating Committee directs the Panel to delete this information from the Code because it is beyond the Scope of the National Electrical Code.

SUBSTANTIATION: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 5-3.5 of the Regulations Governing Committee Projects.

PANEL ACTION: Accept.

The Panel accepts the direction of the Technical correlating Committee. Reject Proposal 12-110 and return back to the Code text of the 1996 Code for Section 645-2(4) including the FPIN.

NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 13

VOTE ON PANEL ACTION:

AFFIRMATIVE: 13

(5-5-9) - (645-5-6)(8), FPIN: Reject

SUBMITTER: James J. Rogers, MA Code Advisory Committee

COMMENT ON PROPOSAL NO: 12-115

RECOMMENDATION: This proposal should be accepted.

SUBSTANTIATION: The technical problem is that under the current requirements defined in the NEC the installation of cables in these areas is negated by building Code requirements. It is understood that the NEC cannot be deviating from existing building Code requirements in general, however, in this instance the language as submitted has bridged the gap between the electrical
Code and the building Code. The reality of what is happening in the electrical profession relative to codes and standards and the uniformity of these codes and standards provides the technical merit that the Panel may be looking for in justifying this additional request.

**PANEL ACTION:** Reject.

**PANEL STATEMENT:** Since the original proposal establishes special criteria for a specific occupancy, the original proposal more appropriately should be proposed to be included in the occupancy standard for computer rooms, NFPA 75, rather than the NEC, an installation standard.

**NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE:** 15

**VOTE ON PANEL ACTION:**

**AFFIRMATIVE:** 12

**NEGATIVE:** 1

**EXPLANATION OF VOTE:**

**CARTAL:** I agree with the submitter's concerns. The electrical inspector is in a catch-22 situation between the NEC and the Building Code regarding the definition of a plenum space and this proposal would provide a means to resolve the conflict.

Section 645-5 already provides a "laundry list" of non-electrical provisions which had to be included in the NEC because of the wide adoption of the NEC as compared to NFPA 75.

**RECOMMENDATION:** Replace the first paragraph of Section 645-5(d)(5) of the Code with the following:

(5) Cables, other than those covered in (2) above and those complying with (a), (b), and (c) below, shall be listed as Type DP cable having adequate fire-resistant characteristics suitable for use under raised floors of an information technology equipment room.

a. Interconnecting cables enclosed in a raceway
b. Interconnecting cables listed with equipment manufactured prior to July 1, 1994 being installed with that equipment
c. Cable type designations Type TC (Article 540); Types CL2, CL3 and PCLTC (Article 720); Types NLPF and PPL (Article 576); Types OFC and OFN (Article 770); Types CM and MP (Article 800); Type CATV (Article 829). These designations shall be permitted to have an additional letter P or R or G. Green insulated single conductor cables No. 4 AWG and larger marked "for use in cable trays" or "for CT use" shall be permitted for equipment grounding.

**PANEL ACTION:**

**AFFIRMATIVE:** 15

**NEGATIVE:** 1

**EXPLANATION OF VOTE:**

**CARTAL:**

*Delete Exceptions No. 1, 2, and 3.*

**RECOMMENDATION:** The revised text will clarify the intent of the action taken on Proposal 12-116.

The additional sentence in paragraph (c) is added to correlate with the panel action on Comment 12-81.

**PANEL ACTION:**

**AFFIRMATIVE:** 15

**NEGATIVE:** 1

**RECOMMENDATION:** This proposal should have been accepted, because it is important that regulatory requirements are based on consensus standards, when ever they exist. This would be consistent with the approach taken by the National Electrical Code for plenum cables, where the NEC correctly references NFPA 209 and not UL 510. I have great confidence in the technical competence of UL, but it is always preferable to have a consensus standard rather than one where the listing organization and the organization responsible for the standard are one and the same.

This may bring about the potential for the appearance of impropriety, even though it is deservedly well respected. Moreover, ASTM D5537 is much more explicit on the details of how to build the equipment and conduct the test than UL 1581 is. I have provided a copy of ASTM D5537 for assistance to the Panel, and to show that the test method is identical to the one referenced in the NEC.

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

**PANEL ACTION:**

**AFFIRMATIVE:** 12

**NEGATIVE:** 1

**RECOMMENDATION:** This proposal should be accepted.

**SUBSTANTIATION:** Tray cable is not the only cable allowed for use in cable tray. Unless all of the cables acceptable for use in the applications are listed or wording added such as in this proposal then there will be voids in what is intended to be allowable. An example of this is Type ITC (Article 727). Based on the current wording in the NEC and the wording for the Panel's rejection of this proposal, it would be excluded from use in this application.

**PANEL ACTION:**

**AFFIRMATIVE:** 12

**NEGATIVE:** 1

**RECOMMENDATION:** This proposal should be accepted.

**SUBSTANTIATION:** Tray cable is not the only cable allowed for use in cable tray. Unless all of the cables acceptable for use in the applications are listed or wording added such as in this proposal then there will be voids in what is intended to be allowable. An example of this is Type ITC (Article 727). Based on the current wording in the NEC and the wording for the Panel's rejection of this proposal, it would be excluded from use in this application.

**PANEL ACTION:**

**AFFIRMATIVE:** 12

**NEGATIVE:** 1

**RECOMMENDATION:** This proposal should be accepted.

**SUBSTANTIATION:** Tray cable is not the only cable allowed for use in cable tray. Unless all of the cables acceptable for use in the applications are listed or wording added such as in this proposal then there will be voids in what is intended to be allowable. An example of this is Type ITC (Article 727). Based on the current wording in the NEC and the wording for the Panel's rejection of this proposal, it would be excluded from use in this application.

**PANEL ACTION:**

**AFFIRMATIVE:** 12

**NEGATIVE:** 1
Supplemental Attachment 13-8-3-g-1

July 22, 2013

Supplemental Agenda July 29-August 1, 2013

Page 592 of 1861

PAGE STATEMENT: Liquidtight flexible conduit cannot be installed unless it is a part of or for listed information technology equipment (645-5(d)). The submission submitted is incomplete as it refers only to liquidtight flexible conduit and offers no definitive technical documentation for the proposed change. The submitter provides no substantive documenting a problem with the current language.

NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 14

VOTE ON PANEL ACTION:
AFFIRMATIVE: 11
NEGATIVE: 1

NOT RETURNED: 2 Kelly, Laney

POCH: 1 suppose, to be consistent with their acceptance of Proposal 12-96, the panel had to accept this proposal, but my concerns about increased fuel load and/or smoke/fumes still exists, so I disagree with the panel action to accept this proposal. Also, see my Explanation of Negative vote on Proposal 12-96.

COMMENT ON AFFIRMATIVE VOTES:
JONES: I was the action the Technical Correlating Committee that this Proposal be reconsidered and correlated with the actions on Proposals 12-97, 12-98, and 12-99. This action will be considered by the Panel as a Public Comment.

SUMMITER: Lorena Orbanic, Carlson, Lamson & Sessions

RECOMMENDATION: Revise as follows:
(2) The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, surface metal raceway with metal cover, flexible metal conduit, liquidtight flexible metal or nonmetallic conduit, Type MI cable, Type MC cable, or Type AC cable. These supply conductors shall be installed in accordance with the requirements of Section 300-11.

SUBSTANTIATION: Electrical nonmetallic Tubing can be used in most places where Electrical Metallic Tubing can be used with a few exceptions. Thus, if EMT can be used in this application, ENT should also be able to be used in this application. Also, under the floor is not an area subject to physical damage, thus there shouldn’t be a concern for that type of mechanical protection. In addition, ENT is subject to the provisions of Article 300-11 just as EMT is. Furthermore, Under Raised Floor is not considered a plenum area as defined by definitions in Article 100 and per 645-5(d) (3) and 300-22, thus it would not exclude ENT.

VOTE ON PANEL ACTION: Accept.
NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 14

VOTE ON PANEL ACTION:
AFFIRMATIVE: 11
NEGATIVE: 1

NOT RETURNED: 2 Kelly, Laney

RECOMMENDATION: Revise the text to read as follows:
(2) The branch-circuit supply conductors to receptacles or field-wired equipment in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, metal wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquidtight flexible metal or nonmetallic conduit, Type MI cable, Type MC cable, or Type AC cable. These supply conductors shall be installed in accordance with the requirements of Section 300-11.

SUBSTANTIATION: This proposal clarifies that the liquidtight flexible nonmetallic conduit is an approved wiring method. The original text is confusing.

VOTE ON PANEL ACTION: Accept.
NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 14

July 22, 2013

NFSFA 70 — May 2001 ROP — Protective of 20 ADDITION
SUBSTANTIATION: Cables that will meet the required smoke resistance characteristics of the building codes for plenum areas, under presently available technology, do not all have acceptable electrical characteristics for these areas. Another approach is to provide a mechanism to sense and stop the circulation of air upon the sensation of smoke. This approach utilizes easily available devices interconnected with the drop-out relaying already in place under these floors.

The model building codes continue to classify these spaces as plenums. However, responsible officials in these organizations recognize the electrical problems involved. We used to have building inspectors failing jobs that electrical inspectors had passed, and both inspectors were correct. This approach has ended that problem.

In the prior code cycle, CMP 12 said that we didn't have a technical problem with the present code. If the building codes condemn the wiring under a computer floor as improper for an air-handling space, you can't operate the equipment. That sounds like a major technical difficulty to me. The point is to meet them half way. The way do do this is to ensure that the floor won't actually be air-handling during a fire condition. We can live with this, and we've eliminated the problem of confounding inspections by different disciplines.

PANEL ACTION: Accept in Principle. Accept the proposal as modified by replacing the term "sensation" with "detection".

PANEL STATEMENT: The proposal is modified for consistency with terminology used in NFPA 72, National Fire Alarm Code.

NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 14

VOTE ON PANEL ACTION:

AFFIRMATIVE: 12

NEGATIVE: 2

RETURNED: 2 Kelly, Laney

12-101. (645-5(d)5)): Reject

SUBMITTER: Rick Zupan, Lake Oswego, OR

RECOMMENDATION: Revise as follows:

645-5(d)(5) Cable, other than those covered in (b) and (2) and those complying with (a), (b) and (c) below, shall be listed as type DP cable having fire-resistant characteristics suitable for use under raised floors of an information technology equipment room.

SUBSTANTIATION: The local authority having jurisdiction has decided that barring explicit language allowing it flexible cords cannot be used to plug into underfloor receptacles, this should correct this.

PANEL ACTION: Reject.

PANEL STATEMENT: Requirements for the use of listed DP cable were put into the NEC because of the panel's concern that cables under the raised floor should pass the vertical flame test. Permitting other than DP cables would not fall within the purpose of the Code as outlined in 901. This Code already contains explicit language prohibiting the use of other than DP-type cable.

NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 14

VOTE ON PANEL ACTION:

AFFIRMATIVE: 10

NEGATIVE: 2

RETURNED: 2 Kelly, Laney

EXPLANATION OF NEGATIVE:

BURKE: The panel should consider that the submitter was attempting to address an inconsistency between the technical content of the present code and the actual application of the code in the field. Although a technical reading of the present code does not permit flexible cords to be routed from the ITE situated above the raised floor to receptacles mounted under the floor, this installation practice is common in many ITE (computer) rooms. The practice is common in part because equipment in an ITE room sometimes must be relocated, and flexible cord better allows for this. Furthermore, due to trip hazards and similar concerns, it often is impractical to locate receptacles above the raised floor. Also, modern servers in computer rooms are often designed to be installed in either a computer room or an office/business environment. Since much of this ITE connects to 15/125V, 20A/125V or 30A/125V branch circuits, it is common to design for, and often impractical to require two different wiring methods for the same equipment, depending upon the application, i.e., flexible cord if used in a non-ITE room application and some other Article 645 compatible wiring method for ITE room applications. When considering both the total volume of the underfloor area of an ITE room and the other protective features required of ITE rooms by both NEC Article 645 and NFPA 75, the presence of limited amounts of flexible cord under the raised floor would seem to have a minimal impact.

PANEL: I disagree with the panel action to reject this proposal, because the proposal would have eliminated the problem of some Authorities Having Jurisdiction not allowing power cords to be plugged into underfloor receptacles. I think the panel statement that only DP cables, but not flexible cords, are permitted under raised floors, is historically incorrect for the following reasons:

1. The allowance of receptacles beneath raised floors, Section 645-5(d)(2), prior to the development of DP cables, had always implied flexible cords would be permitted below raised floors in order to plug into those receptacles.

2. DP cables have not been intended for use as power cords. They were introduced recently to the code and ITE standards for use as interconnecting cables.

3. Type DP cables are not present in Article 400, are not hard service cord types, and therefore, would not be usable for power cords on machines outside computer rooms. Manufacturers would have to either market two machine types or replace cords in the field. Field rewiring is significantly less safe and dependable than that done and tested in manufacturing facilities.

4. During the introduction of DP cables, it was never mentioned that DP cables are required to replace flexible power cords. Prohibiting the use of these flexible power cords, if desired by this panel, should be the topic of a new proposal with full consideration of its impact on current installations and the timetable for implementation.

5. No current products or installations use DP cables for power cords since such construction is not allowed by UL 1950 (which only permits the following types for mounted floor equipment: SJ, SE, SJEO, SJEOO, SJE, SJT, SJTO, SJTOO, SE, SO, SOO, ST, STO, AND STO).

6. The interpretation that only DP cables could be used for power cordage below raised floors would result in placement of receptacles and power cords on the raised floor, resulting in possible increases in tripping hazards and damage risks to the cords.

7. Rejecting this proposal with the publication of the current panel statement would have the result of a change to the code and current usage.

8. Standard power cords run below raised floors constitutes almost 100 percent of current usage, and has not been shown to be a problem.

Therefore, I recommend accepting Proposal 12-101 as a correction or improvement in the current code.

COMMENT ON AFFIRMATIVE:

WHITE: The panel statement read that only DP cables are allowed under the raised floor. It should also refer to Section 645-5(d)5(c) which allows for types: TC, CL2, CL3, PLTC, NPLF, FPL, OFC, OFN, CM, MP, CATV. These designations shall be permitted to have an additional letter P or R or C. Green insulated single conductor cables, No. 4 and larger, marked "for use in cable trays" or "for CT use" shall be permitted for equipment grounding.

12-102. (645-5(d)5), FPNAV): Accept

SUBMITTER: Technical Correlating Committee National Electrical Code

RECOMMENDATION: Replace 4 ft. 11 1/2 in. (1.5 m) with "1.5 m (4 ft. 11 in.")

SUBSTANTIATION: The proposed revision is intended to comply with the NFPA No. 1M Manual of Style Section 4.1 with respect to the placement of units and values of measurement.

PANEL ACTION: Accept.

NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 14

VOTE ON PANEL ACTION:

AFFIRMATIVE: 12

RETURNED: 2 Kelly, Laney
Tentative Interim Amendment

NFPA 75
Standard for the Protection of Information Technology Equipment

2009 Edition

Reference: 10.4.4 and A.10.4.4
TIA 09-1
(SC 12-3-6/TIA Log #1042)

Pursuant to Section 5 of the NFPA Regulations Governing Committee Projects, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 75, Standard for the Protection of Information Technology Equipment, 2009 edition. The TIA was processed by the Technical Committee on Electronic Computer Systems, and was issued by the Standards Council on March 6, 2012, with an effective date of March 26, 2012.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards-making procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a proposal of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards-making process.

1. Delete subsection 10.4.4 and Annex A.10.4.4.

Issue Date: March 6, 2012
Effective Date: March 26, 2012

(Note: For further information on NFPA Codes and Standards, please see www.nfpa.org/codelist)

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NATIONAL FIRE PROTECTION ASSOCIATION
NFPA 75-2009

Standard for the Protection of Information Technology Equipment

TIA Log No. 1042

Reference: 10.4.4 and A.10.4.4

Comment Closing Date: January 13, 2012

Submitter: Thomas Wysocki, Guardian Services, Inc.

I. Delete subsection 10.4.4 and Annex A.10.4.4.

Submitter’s Substantiation: NFPA 75 sets forth the minimum requirements for the protection of information technology equipment and information technology equipment areas from damage by fire or its associated effects — namely, smoke, corrosion, heat, and water.

NFPA 75 TC Considerations During preparation of the 2009 edition of NFPA 75, Section 10.4.4 which is referenced as an extraction from NFPA 70 Article 645 was updated per the NFPA extraction policy to include a provision from NEC Article 645 that under raised floors “The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.”

A problem with this is that in preparation of the 2003 edition of NFPA 75 while developing CP46, the Technical Committee specifically considered and rejected this sentence requiring cessation of air flow upon detection of fire or products of combustion. The meeting minutes from January 24 & 25, 2001 note the discussion and rejection of the subject sentence. The subject paragraph in the 2003 edition of NFPA 75 reads: “(3) Ventilation in the underfloor area is used for the information technology equipment room only.”

The 2003 action of the NFPA 75 technical committee to omit the NEC requirement was purposeful and intended by the NFPA 75 Technical Committee. The addition of the sentence in the 2009 edition was not intended by the NFPA 75 Technical Committee and is an undesired consequence of the application of the NFPA extraction policy. The requirement which this sentence adds can, if enforced, have serious negative consequences.

In order to remove this requirement from NFPA 75 the entire NEC extraction of Section 10.4.4 must be deleted. This will not cause any unintended consequences as the desired provisions for wiring under the raised floor of an IT facility contained in 10.4.4 as extracted from NFPA 70 Article 645 are covered in section 10.3.1 of NFPA 75 2009 Edition.

Consequences of the Unwanted Requirement

Today’s IT servers run applications that are critical to business continuity and frequently have life safety implications. Unplanned shutdown of the IT equipment can cause loss of control over life support systems, emergency response systems, security systems and loss of essential data in process. Therefore, it may be undesirable – or even dangerous - to automatically shut down equipment that is not directly involved in a fire.

Modern server racks contain multiple processing units which can create a large amount of heat. If air conditioning equipment used to cool the servers is shut down, temperatures can increase by as much as 40 degrees in a matter of minutes, potentially causing more damage than the heat of a small electronic fire. Therefore, it is desirable to maintain cooling air flow for as long as possible.

Thermal overheat devices are built in to servers to immediately depower components in an attempt to prevent permanent equipment damage. But permanent equipment damage from complete cessation of cooling air flow to operating IT equipment is nonetheless possible. Plus, the sudden loss of function due to equipment shutdown from thermal overheat can have serious consequences.

Relation to Fire Suppression Fire suppression systems used in IT facilities are often designed to detect and extinguish fire in its incipient stage while cooling air flow through the facility is maintained and servers remain running. If depowering of equipment is required as part of the fire protection, such depowering is generally done in a planned, programmed sequence to minimize loss of data. When an IT facility is providing support or control related to life safety or security, the depowering sequence typically includes provision to transfer support or control functions to a backup IT
facility. Determination of when it is safe to shut off ventilation to the IT equipment is based on the powering sequence.

**Air Flow Affects Detection** In IT facilities protected by automatic gaseous extinguishing systems, the activation of more than one detector is usually required to confirm existence of fire and thereby release the fire extinguishing gas. Air flow is taken into account in locating smoke detectors. Cessation of normal air flow upon activation of a single smoke detector can delay the activation of additional smoke detectors in the IT facility and thereby delay release of automatic gaseous extinguishing agent in facilities equipped with such systems.

**Summary of Technical Merit** The NFPA 75 technical committee understood the risks of automatically stopping the flow of cooling air under a raised floor upon first detection of fire or products of combustion under the raised floor when they declined to add the sentence to the 2003 edition of the standard.

Due to ever increasing heat loads in modern data centers, these risks are more serious today than they were when the 2003 edition of NFPA 75 was developed. NFPA 75 edition 2009 contains other requirements and guidance for proper control of air handling systems in IT facilities. These requirements should remain. But the unwanted requirement for shut down of air flow through the underfloor space upon detection of smoke or fire must be deleted from the 2009 edition of the standard. Because the NFPA extraction policy directs that editing of extracted text be confined to making style consistent with that of the document containing the extract, it is necessary to remove the entire 10.4.4 in order to delete this unwanted requirement.

The decision on how and when to shut down air flow should be left to the facility design engineer and operations management using the guidance given in NFPA Standard 75 and guidance given in standards covering the specific fire suppression system employed in the facility.

**Emergency Nature:** Removal of this sentence from NFPA 75 edition 2009 is an urgent matter requiring the emergency action of a TIA because:

1) **NFPA 75 Edition 2009 is currently being enforced in many jurisdictions.** End users are being forced by some AHJs to shutdown cooling airflow under the raised floor and into the IT equipment upon first detection of fire or products of combustion under the raised floor or be refused an occupancy permit. The choice is between operating the facility and risking unnecessary damage to equipment and/or loss of IT function or not operating the facility.

2) In facilities protected by gaseous extinguishing systems, the release of the gaseous extinguishing system may be delayed if air flow through space under the raised floor ceases upon activation of a single smoke detector. Such delay in the release of gaseous agent can unnecessarily increase the amount of fire damage before the extinguishing system is activated.

3) Many IT facilities utilize very early warning smoke detection capable of detecting minute quantities of smoke thus permitting effective programmatic intervention before fire poses serious risk of equipment damage or interruption of functionality. Requiring shut down of cooling air flow upon detection of smoke under such conditions defeats this very efficacious response to fire.

4) Since NFPA 75 edition 2009 has already been processed, the TIA is the only means available to remove the unwanted sentence.

Members of the ELT technical committee responsible for NFPA 75 have submitted a proposal to the NEC code making panel to delete the same sentence, a performance requirement, from Article 645. The proposal was approved by vote of the ELT Technical Committee by a vote of 18 affirmative 1 negative.
TIA FINAL BALLOT RESULTS

According to 5.4 in the NFPA (RGCP), the final results show this TIA HAS achieved the necessary votes on both Question 1 (Technical Merit) and Question 2 (Emergency Nature).

The number of affirmative votes needed to obtain a recommendation to issue the TIA is 14.

\[28 \text{ (eligible to vote)} - 10 \text{ (not returned)} - 0 \text{ (abstentions)} = 18 \times 0.75 = 13.5\]

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

\[28 \text{ eligible} \div 2 = 14 + 1 = 15 \text{ (this is the simple majority)}\]

28 Eligible to Vote
10 Not Returned (Brown, Carman, Pikula, Polasko, Powell, Puig, Rawson, Saba, Suski, Zolotar)

TC FINAL Ballot results for Technical Merit are as follows:
18 Agree (Langer w/comment)
  0 Disagree
  0 Abstentions

FINAL ACTION: PASSED

TC FINAL Ballot results for Emergency Nature are as follows:
18 Agree (Langer w/comment)
  0 Disagree
  0 Abstentions

FINAL ACTION: PASSED
Question 1: I agree with the TECHNICAL MERITS of the Proposed TIA to delete subsection 10.4.4 and Annex A.10.4.4.

____ X ____ AGREE       _________ DISAGREE*       _________ ABSTAIN*

EXPLANATION OF VOTE - Please type or print your comments: See Attached

*An explanation must accompany a disagreement or abstaining position.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Question 2: I agree that the subject is of an EMERGENCY NATURE.

____ X ____ AGREE       _________ DISAGREE*       _________ ABSTAIN*

EXPLANATION OF VOTE - Please type or print your comments: See Attached

*An explanation must accompany a disagreement or abstaining position.

____________________________________________________________________
____________________________________________________________________

_____________________
Robert Langer
Name (Please Print)

_____________________
December 16, 2011
Date

Please return the ballot on or before December 16, 2011.

PLEASE RETURN TO:
Elena Carroll, Administrator, Technical Projects
NFPA
1 Batterymarch Park
Quincy, MA 02169
FAX: (617) 984-7110
E-mail: ecarroll@nfpa.org
The following sentence in subsection 10.4.4 will create unsafe conditions in IT facilities: "The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease."

There is a need to issue this TIA based on the emergency nature of the request. Specifically, there is a potential negative impact to the overall safety of a facility and its occupants if the underfloor ventilation system is prematurely shut down. The current verbiage in NFPA 70, which was extracted and placed in NFPA 75, is out of date and doesn’t contemplate current fire protection technology. Please consider the following:

Many IT facilities are protected by automatic gaseous extinguishing systems. These fire suppression systems are installed with detection systems to detect a fire during its incipient stage. The detection systems serve two functions. The first function is to notify people of a potential emergency fire situation while allowing cooling air to continue to flow through the facility and the IT servers remain operating. The second purpose of the smoke detection system is to automatically actuate the gaseous agent system.

The actuation of the gaseous agent system is accomplished with a second detector located remotely from the one that signals an emergency fire situation. These detectors are typically spaced at one half of the permitted coverage area, providing a higher level of confidence that the system accurately reports the fire/smoke condition. Some jurisdictions are interpreting the requirement to mean that ventilation systems must be shut down upon initial detector activation, which defeats the overall purpose of cross-zoned systems, air aspirating systems, and other technologically advanced detection schemes.

Many, if not most buildings depend upon servers to operate building systems, including smoke control systems, evacuation alarms, ventilation systems, security systems, and other building components that provide for the safety of occupants. Shutting down the ventilation system for the servers may create a greater hazard to building occupants than leaving them running.

These facilities need a higher level of flexibility than is permitted by the arbitrary requirement to shut down the ventilation system upon activation of a smoke alarm. A nominal risk assessment will provide all of the information necessary to determine the safest and most appropriate response to a detection system’s readings.

Although there were good intentions for the editorial update of the extracted material, the potential negative impact to life safety and business continuity outweigh the need to conform to an update policy. I strongly urge the Standards Council to issue this TIA based on the emergency nature of the request and the concerns outlined above.
July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 600 of 1861

Supplemental Attachment 13-8-3-g-1

Page 18 of 20 ADDITION

Report on Proposals A2013 — Copyright, NFPA

12-125 Log #2840 NEC-P12 Final Action: Reject (645.5(E)(2))

Submitter: James F. Williams, Fairmont, WV
Recommendation: Revise text to read as follows:
645.5(E)

(2) The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, nonmetallic wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquidtight flexible metal conduit (LFMC), or liquidtight flexible nonmetallic conduit, Type MI cable, Type MC cable, Type AC cable and associated metallic and nonmetallic boxes or enclosures. These supply conductors shall be installed in accordance with the requirements of 300.11.

Substantiation: "Liquidtight Flexible Metal Conduit" is also referred to as "LFMC"

Suggest that "(LFMC)" be added to all references. This will make finding all references to "Liquidtight Flexible Metal Conduit" easier and more reliable.

Panel Meeting Action: Reject
Panel Statement: CMP-12 does not agree that adding the abbreviation LFMC to liquidtight flexible metal conduit adds to usability of this section.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-126 Log #2867 NEC-P12 Final Action: Reject (645.5(E)(2))

Submitter: James F. Williams, Fairmont, WV
Recommendation: Revise text to read as follows:
645.5(E)

(2) The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, nonmetallic wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquid tight flexible metal conduit, or liquidtight flexible nonmetallic conduit (LFNC), Type MI cable, Type MC cable, or Type AC cable and associated metallic and nonmetallic boxes or enclosures. These supply conductors shall be installed in accordance with the requirements of 300.11.

Substantiation: "Liquidtight Flexible Metal Conduit" is also referred to as "LFNC"

Suggest that "(LFNC)" be added to all references. This will make finding all references to "Liquidtight Flexible Metal Conduit" easier and more reliable.

Panel Meeting Action: Reject
Panel Statement: CMP-12 does not agree that adding the abbreviation LFNC to liquidtight flexible nonmetallic conduit adds to usability of this section.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-127 Log #2898 NEC-P12 Final Action: Accept (645.5(E)(2))

Submitter: James F. Williams, Fairmont, WV
Recommendation: Revise text to read as follows:
645.5(E)

(2) The branch-circuit supply conductors to receptacles or field-wired equipment are in rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, electrical metallic tubing, electrical nonmetallic tubing, metal wireway, nonmetallic wireway, surface metal raceway with metal cover, nonmetallic surface raceway, flexible metal conduit, liquid tight flexible metal conduit, or liquidtight flexible nonmetallic conduit, Type MI cable, Type MC cable, or Type AC cable and associated metallic and nonmetallic boxes or enclosures. These supply conductors shall be installed in accordance with the requirements of 300.11.

Substantiation: Use the term found throughout the Code

Panel Meeting Action: Accept
Panel Statement: See panel action and statement on 12-114.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-130 Log #1104 NEC-P12 Final Action: Reject (645.5(E)(5))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Recommendation: Revise as follows:
645.5(E)

The length and arrangement for physical protection of supply cords of listed information technology equipment shall comply with 645.5(E)(3). This item occurs in a list of conditions, but fails to state a condition. A verb is required for this to be worded correctly, and this proposal supplies appropriate wording.

Panel Meeting Action: Reject
Panel Statement: The text in the proposal is not in 645.5(E)(5). Further see the panel action on 12-128.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-131 Log #3289 NEC-P12 Final Action: Accept in Principle (645.5(E)(6))

Submitter: Robert E. Johnson, ITE Safety
Recommendation: Revise text to read as follows:
645.5(E)(6)

(6) Cables, other than those covered in (E)(2) and (E)(3) and those complying with 645.5(E)(6) and (E)(6)(b) shall be:
a. Listed as type DP cable having adequate fire resistant characteristics suitable for use under raised floors of an information technology equipment room.
b. Interconnecting cables enclosed in a raceway.
c. Cable type designations shown in Table 645.5 shall be permitted.
d. Green or green with one or more yellow stripes, insulated single conductor cables, 4 AWG and larger, marked "for use in cable trays" or "for CT use" shall be permitted and used for equipment grounding.

Informational Note...

Substantiation: No change in requirements intended. This clause permits several cable type which are more clearly presented in a single list.

Panel Meeting Action: Accept in Principle
Supplemental Attachment 13-8-3-9

Report on Comments A2013 — Copyright, NFPA

Informational Note: For information on listing requirements for both information technology equipment and communications equipment, see UL 60950-1-2007, Information Technology Equipment - Safety - Part 1: General Requirements; or UL 62368-1:2012, Audio/Video, Information and Communication Technology Equipment - Part 1: Safety Requirements. Substantiation: This is one in a series of proposals to update NFPA 70 to add a reference to UL 62368-1.

The ANSI/UL 62368-1, Audio/video, information and communication technology equipment – Part 1: Safety requirements, was published on February 17, 2012. This new standard (referred to by this number) includes UL 60950, Audio, Video, and Similar Electronic Apparatus-Safety Requirements, and UL 60950-1, Information Technology Equipment Safety - Part 1: General Requirements. In the meantime, multiple references to UL 60950-1 in the body of the Code should be supplemented by a reference to UL 62368-1, since it applies (with UL 62368-1, both standards) to equipment already being listed to UL 62368-1.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-58 Log #312 NEC-P12 Final Action: Accept in Principle (645.3(B) and 645.32 (New))

TCC Action: The Correlating Committee directs that the words "the provisions of" be replaced with the word "sections." Although the NEC Style Manual does not permit the use of the word "Section", when section numbers are used in the beginning of a sentence it is appropriate to use the word "Section.

Submitter: Frank W. Peri, Communications Cable & Connectivity Assoc.

Comment on Proposal No: 12-109

Recommendation: In 645.3(B) make the followings changes:

(B) Plenums. The provisions of Sections 300.22(C)(1), 725.135(B), 726.15(A), 726.152, 726.154(A), 726.154(C), 770.113(C), 800.113(C), and 820.113(C) and Tables 725.154, 760.154, 770.154(A), 800.154(A) and 820.154(A) shall apply to wiring and cabling in a plenum (other space used for environmental air) above an information technology equipment room.

In 645.32 (645.10(B) renumbered by CMP-12 action on proposal 12-109) 645.32 Under Raised Floors in a Critical Operations Data System. Signal wiring under a raised floor in a critical operations data system shall be in compliance with 300.22(C), 725.135(B) and Table 725.154 (A), 770.113(C) and Table 770.154(a), 800.113(C) and Table 800.154(a), or 820.113(C) and Table 820.154(a).

Substantiation: This is a correlative comment to our comments on proposal 3-1444 and 3-156 to recommend the raise of 725.154 and move the installation requirements out of 725.154 into a new section 725.135. If those comments are accepted, the references to 725.154(A) will need to be changed to correlate.

Panel Meeting Action: Accept in Principle

Revise 645.3(B) to read as follows:

(B) Plenums. The provisions of Sections 300.22(C)(1), 725.135(B), 726.53(B)(2), 726.135.(B), 770.113(C), 800.113(C), and 820.113(C) and Tables 725.154, 760.154, 770.154(A), 800.154(A) and 820.154(A) shall apply to wiring and cabling in a plenum (other space used for environmental air) above an information technology equipment room.

Revise 645.10(B)(5) to read as follows:

(5) Cables installed under a raised floor, other than branch circuit wiring and power cables installed in compliance with 645.5(E)(2) or (3), or in compliance with 300.22(C), 725.135(B) and Table 725.154, 770.113(C) and Table 770.154(a), 800.113(C) and Table 800.154(a), or 820.113(C) and Table 820.154(a).

Panel Statement: CMP-12 accepts the submitter's text with regard to 645.3(B) and edits the text for 645.10(B)(5) to correlate with CMP-3 action on Comments 3-7-5, 3-101 and 3-104. CMP-12 also revises 645.5(E)(2) and (D)(3) (645.5(E)(2) and (D)(3) to point to the correct location. The panel is aware that errata was issued for 645.10(B)(5) numbered 70-11-1 item 20.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-59 Log #390 NEC-P12 Final Action: Accept in Principle (645.4)

Submitter: Stanley Kaufman, CableSafe, Inc.

Comment on Proposal No: 12-112

Recommendation: Change the panel action from Accept to Accept in Principle and modify the text as shown:

This article shall be permitted to provide alternate wiring methods within the information technology equipment room and under the raised floor to the provisions of Chapter 2, Chapter 3, Chapter 4, and Chapter 5 of Article 725 for signaling wiring, and Parts I and V of Article 770 for optical fiber cabling when all of the following conditions are met:

Substantiation: The recommended provision provides clarity and reflects the titles of the Articles. The title of Chapter 1 is "General"; Chapter 2, "Wiring and Protection"; Chapter 3, "Wiring Methods"; and Chapter 4 "Equipment for General Use".

The intent of Article 645 is to provide "alternate wiring methods" that are commonly found in Chapters 2, 3, 4 and 5 of Article 725 and provide an option to Chapter 725's wiring methods when the facility and installation meets the qualification requirements contained within Article 645 to allow such an option. The non-wiring method requirements contained in Article 645 do supplement or modify the requirements contained within Chapters 1, 2, and 4 of the NEC as per 90.3.

This is one of several Comments prepared by the CMP 12 Article 645 Task Group consisting of CMP 12 members Tom Brown, Tim Croushore, Tom Hedges, Bob Johnson, Stan Kaufman, John Kovatch, Todd Lottmann and Jose Salazar.

Panel Meeting Action: Accept in Principle

Revise the first paragraph of 645.4 to read as follows:

645.4 Special Requirements for Information Technology Equipment Room. This article shall be permitted to provide alternate wiring methods to the provisions of Chapter 3 for power wiring, Parts I and V of Article 725 for signaling wiring, and Parts I and V of Article 770 for optical fiber cabling when all of the following conditions are met:

Panel Statement: CMP-12 revises the submitter's text to remove reference to "under the raised floor" and remove reference to "the information technology room". CMP-12 revises the text to make it concise.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-60 Log #1868 NEC-P12 Final Action: Reject (645.4(2) Exception)

Submitter: Thomas J. Wysocki, Guardian Services, Inc.

Comment on Proposal No: 12-114

Recommendation: Delete text as follows:

Equipment in a plenum above an IT equipment rack and other spaces shall be permitted to control the cessation of the air circulation within the room or zone.

Substantiation: Assuming my comment on Proposal 12-109 Paragraph 645.4 (B) to delete "the ventilation system shall also be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease." is accepted, the proposed 645.4 (2) Exception will not be pertinent.

Panel Meeting Action: Reject

Panel Statement: The rationale for 645 permitting non-plenum cables in the raised floor plenum is that there are fire protection requirements in the article. Conformance to NFPA 75 is not required by Article 645. All references to NFPA 75, Standard for the Fire Protection of Information Technology Equipment, are in informational notes only. The NEC Style Manual prohibits references to other standards in the mandatory text. The panel, in its action Proposal 12-114, provided the relief that the submitter seeks for installations with a high level of fire protection, i.e., critical operations data systems.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-61 Log #1859 NEC-P12 Final Action: Reject (645.4(8))

Submitter: Thomas J. Wysocki, Guardian Services, Inc.

Comment on Proposal No: 12-109

Recommendation: Revise text to read as follows:

(8) If a raised floor is present, ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4. The ventilation system shall also be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.

Substantiation: The text indicated for deletion deals with control of air circulation within the IT room and is outside the scope of NFPA 70 and sets forth a requirement which is often technically undesirable in modern information technology rooms. The basis of the comment is twofold:

1) Responsibility for the protection of IT facilities is the scope of NFPA 75. Within that scope NFPA 75 covers risk considerations, construction, and operating (performance) requirements -- control of airflow within an IT facility is the province of NFPA 75.

Acceptance of this comment would remove a conflict in requirements between NFPA 75 and NFPA 70 and clarify the demarcation between "what" (NFPA 75) must be done in IT facilities and "how" (NFPA 70) to accomplish the electrical installation.

The operating characteristics (performance) for an information technology equipment room are the province of NFPA 75. NFPA 70 addresses the "how" of accomplishing the functions required by NFPA 75 for operation of IT equipment and the utilities serving the IT facility. Several decisions of the Standards Council point to the responsibility of NFPA 75 with respect to control of combustible in IT facilities.

Standards Council decision 85-90 (April 1991) advised that the Committee on Electronic Computer Systems (NFPA 75) has responsibility for combustibles under the raised floor of a computer room. NFPA 90A 2012 Edition recognizes that fact and states the following with respect to materials installed within a raised floor plenum in a computer/data processing room.
July 22, 2013  Supplemental Agenda July 29-August 1, 2013  Page 602 of 1861

in the raised floor plenum, as discussed in the Article. Conformance to NFPA 75 is not required by Article 645. All references to NFPA 75, Standard for the Fire Protection of Information Technology Equipment, are in informational notes only. The NEC Style Manual prohibits reference to other standards in the mandatory text. The panel, in its action on Proposal 12-114, provided the relief that the submitter seeks for installations with a high level of fire protection, i.e., critical operations data systems.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-62 Log #1570 NEC-P12 Final Action: Accept (645.5(10))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.

Comment on Proposal No: 12-133
Recommendation: Accept the proposal in principle. Revise text to read as follows:

The disconnecting means shall be implemented by comply with either (A) or (B).

Substantiation: This wording meets the panel objection, but retains the part of the proposal that eliminates phrasing that does not occur elsewhere in the NEC and replaces it with much more familiar and user-friendly language.

Panel Meeting Action: Accept
Panel Statement: CMP-12 notes that the submitter intended to refer to the last sentence of the first paragraph of 645.10
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-63 Log #577 NEC-P12 Final Action: Accept (645.5(B))

Submitter: Thomas M. Burice, UL LLC

Comment on Proposal No: 12-109
Recommendation: Review the Informational Note associated with 645.27(2) to reference the new standard UL 62368-1.

Informational Note: One method of determining if cords are of a type permitted for the purpose is found in UL 60950-1:2007, Safety of Information Technology; or UL 62368-1:2012, Audio/Video Information and Communication Technology Equipment – Part 1: Safety requirements.

Substantiation: This is one in a series of proposals to update NFPA 70 to add a reference to UL 62268-1.

ANSI/UL 62368-1, Audio/video, information and communication technology equipment – Part 1: Safety requirements, was published on February 17, 2012. This new standard will eventually replace (later this decade) both, UL 60065, Audio, Video, and Similar Electronic Apparatus-Safety Requirements, and UL 60950-1, Information Technology Equipment Safety - Part 1: General Requirements. In the meantime, multiple references to UL 60950-1 in the body of the Code should be supplemented by a reference to UL 62368-1 since similar equipment complying with, and Listed to both standards will be installed per the Code. In fact, equipment already is being Listed to UL 62368-1.

Panel Meeting Action: Accept
Panel Statement: CMP12 notes the submitter intended to refer to the informational note associated with 645.5(B).
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-64 Log #172 NEC-P12 Final Action: Accept (645.5(E)(3))

Submitter: Technical Correlating Committee on National Electrical Code®

Comment on Proposal No: 12-128
Recommendation: The Correlating Committee directs that the panel clarify the panel action on this proposal as the accepted revision does not appear in the panel action on Proposal 12-109.

Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept
Panel Statement: CMP-12 accepts the directions of the Correlating Committee to review the panel action on Proposal 12-109.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

12-65 Log #1446 NEC-P12 Final Action: Reject (645.10(B))

Submitter: Ralph Trusne, The RJA Group, Inc.

Comment on Proposal No: 12-136
Recommendation: Add and Article 708 after "Chapters 1 through 4".

Substantiation: I submitted proposal 12-136 because some users may associate a critical operations data system with Article 708, Critical Operations Power Systems. Applying Article 708 to a data center would apply many
NFPA Standards Council;

Thank you for the opportunity to comment on the appeal of Mr. Wysocki related to Certified Amending Motion 70-21. I do not plan to attend the NFPA Standards Council meeting. Rather, I would like to offer the following comments regarding the appeal.

While I agree with Mr. Wysocki's position on the issue, less than 2/3 of the voting members of CMP-12 officially agree (as established by written ballot) with his position. Therefore, in my opinion, the NFPA Regulations Governing Committee projects Section 4.7 is quite clear regarding the outcome of the action.

I have read through the transcript beginning on page 104 (122) of the National Fire Protection Association, Annual 2013 Association Technical Meeting dated June 13, 2013 regarding this issue. The explanation that I provided at the Association Technical Meeting details the actions that occurred at the CMP-12, ROP and ROC meetings and my own opinion regarding this issue.

Attached is the document that I read during my time at the microphone on this issue. I agree that the text that was captured by the meeting recorder is essentially what I had intended to read regarding this issue.

During the CMP-12 ballot recirculation on this amendment, I noticed several members of CMP-12 did not vote in favor of the Certified Amending Motion. I was concerned since most of these individuals did not attend the Association Technical Meeting and did not have the opportunity to hear or read the discussion that occurred there. I also wanted them to know that my position on the issue is to support the NFPA 75 committee proposal. Therefore, I sent an e-mail to these members and explained my position and asked that they re-evaluate their vote. If they wished to change their ballot, they could do so as indicated in the official ballot recirculation documentation. Some members did change their ballot. However, the final result was that less than the required 2/3 of the voting members voted in favor of the amendment.

It is my opinion that all of the NFPA Regulations Governing Committee Projects were followed during the action and deliberation on this technical issue and the outcome should be as balloted by the CMP-12 committee.

Thank you for the opportunity to comment on this appeal.

Timothy M. Croushore
Chair - National Electrical Code Making Panel 12
FirstEnergy Technologies
800 Cabin Hill Drive
Greensburg, PA 15601
Phone: 724-838-6198
Cell: 724-433-8746
tcroush@firstenergycorp.com
Hello, my name is Timothy M. Croushore. I work for FirstEnergy. I represent the electric utility industry through the Edison Electric Institute (EEI). I am the chair of National Electrical Code Making Panel 12.

I rise to speak in support of the motion. I would recommend that the Association membership support approval of this motion.

As Chair of CMP-12, it is my opinion that the NFPA Regulations Governing Committee Projects were followed during both the proposal and comment stage by the technical committee. However, in my opinion, the technical committee (CMP-12) may not have landed in proper place with this issue.

This issue requires the Ricky Ricardo response to the statement… Lucy, you’ve got some explaining to do…

Proposal 12-129 can be found on page 70-685 in the ROP. It is a properly balloted proposal that comes from the NFPA Technical Committee on Electronic Computer Systems who are responsible for the NFPA 75 document – the *Standard for the Protection of Information Technology Equipment*. Note the information about the ballot voting and the names of the individuals involved because this is important to why and where CMP-12 landed.

This issue in this proposal involves removing the long standing requirement in 645.5(E)(4) second sentence that states “The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.”

CMP-12 began to understand the ventilation system issue when Proposal 12-114, pg 70-682 ROP was being discussed. This proposal had come first on our docket of work. Mr. Stephen McCluer, who had previously requested of the Chair to address CMP-12 about his Proposal 12-114, was granted 10 minutes to speak and answer questions about his proposal as permitted by the Regulations Governing Committee Projects. Mr. McCluer is a member of the NFPA Technical Committee on Electronic Computer Systems and was aware of and voted affirmatively on Proposal 12-129. Mr. McCluer spoke, made us aware of the issue and answered questions.

During the CMP-12 deliberation on Proposal 12-114, Dr. Stanley Kaufman who is also a member of both CMP-12 and the Technical Committee on Electronic Computer Systems brought up the opposing view. Note that he previously balloted negatively on creating Proposal 12-129 from the Technical Committee on Electronic Computer Systems. The panel members listened to the opposing view and were concerned about completely removing the ventilation requirement from 645.5(E)(4). After further discussion, a resolution was offered and CMP-12 Accepted in Principal proposal 12-114 which created
a new exception to 645.4(2) that essentially resolved some of the ventilation issue for Critical Operations Data Systems as inspired by Mr. McCluer’s proposal.

When the panel got to Proposal 12-129, pg 70-685 on the docket, it was Rejected and the statement pointed back to the action on 12-114 in which the panel believed it had resolved the issue.

During the Comment stage, CMP-12 received Comment 12-60, page 70-322 ROC to delete the newly created exception. CMP-12 rejected this comment because it would have deleted the fix created during the proposal stage. There were no comments on the original proposal 12-129 from the NFPA 75 technical committee or its members. Therefore, in my opinion, CMP-12 acted consistently and in accordance with the NFPA regulations.

The outcome of the NITMAM Certified Amending Motion does two things. 1. It moves forward Proposal 12-129 which deletes the second sentence of 645.5(E)(4) that states “The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of fire or products of combustion in the underfloor space, the circulation of air will cease.” 2. It moves forward Comment 12-60 that deletes the CMP-12 created exception to 645.4(2) found in proposal 12-114.

After reviewing the ventilation requirements and options that are contained in NFPA 75 and discussing this course of events with Mr. Wysocki who is the former chair of the NFPA 75 committee and submitter of the NITMAM, I believe that this action and motion are appropriate.

Therefore, I would recommend that the Association membership support this Certified Amending Motion.

Thank You.
At its meeting of 22-24 July 2008, the Standard Council considered an appeal from Josh Elvove from the U.S. General Services Administration requesting that the Association action to accept Comment 75-4 be accepted for the 2009 edition of NFPA 75, Standard for the Protection of Information Technology Equipment. The appeal, in general terms, concerns a provision for when the area below the raised floor in an information technology equipment room or area should be protected by a fire suppression system. The existing 2003 edition of NFPA 75 made such protection mandatory. The appeal seeks relaxation of that requirement. Specifically it requests that Comment 75-4 be accepted which would revise section 8.1.1.2 of NFPA 75 to require an under floor fire suppression system only “where the risk warrants it.” In addition and in the alternative, the appellant asks the Council to consider new language to section 8.1.1.2 which was not processed through the codes and standards development process. The alternative language reads: “Where there is a critical need to protect data in the process, reduce equipment damage, and facilitate return to service, consideration shall be give to use either an automatic sprinkler system, carbon dioxide extinguishing system, or inert agent fire extinguishing system for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area shall be provided.”

As background, Proposal 75-11 recommended revising section 8.1.1.2 to add the “where the risk warrants it” phrase. This was rejected by the Technical Committee (TC) on Electronic Computer Systems. Subsequently, Comment 75-4 recommended that Proposal 75-11 be accepted. This was accepted-in-principle by the TC with a committee action that underfloor fire suppression systems be provided unless the applicable referenced installation standard allowed an exemption for such system. A Certified Amending Motion (CAM 75-2) seeking acceptance of Comment 75-4, as submitted, was made at the 2008 Association Technical Meeting. The amending motion, which in effect sought the “where the risk warrants it” language, was supported by NFPA membership, but failed to pass the subsequent balloting of the TC by the two-thirds affirmative vote necessary under NFPA rules to achieve TC support. When a recommended amendment is not approved by the TC, under NFPA rules, the default recommendation of the codes and standards development process is that no change from the existing edition should occur and the portion of the Report modified by the Association recommended amendment is returned to previous edition text. In this case, therefore, the default recommendation that comes to the Council is that no change be made to the existing mandatory requirement in section 8.1.1.2 that fire suppression systems for the protection of the area below the raised floor in an information technology equipment room or information technology equipment area shall be provided.

The appeal requests that the Standards Council take action other than that recommended by the full NFPA codes and standards development process. On appeal, the Standards Council accords great respect and deference to the NFPA codes and standards development process. In conducting its review, the Council will overturn the result recommended through that process.
only where a clear and substantial basis for doing so is demonstrated. The Council has reviewed the entire record concerning this matter and has considered all the arguments put forth in this appeal. In the view of the Council, this appeal does not present any clear and substantial basis on which to overturn the results recommended by the full NFPA codes and standards development process. Specifically, the Council finds no basis for the Council to accept Comment 75-4. Moreover, as to the alternative language proposed by the appellant, the Council would rarely consider accepting language that had not been submitted through the NFPA process, and it has found no reason to do so here. Accordingly, the Council has voted to deny the appeal. The effect of this action is that section 8.1.1.2 of the 2009 edition of NFPA 75 will read as indicated in the previous 2003 edition.
Standards Council Appeal on Motion 70-21

In accordance with the NFPA Standards Directory section 1.6.3, I am responding to the action on Motion 70-21 and the related Proposals 12-114, 12-129 and Comment 12-60.

Name, affiliation, and address of the appellant

Stephen W. McCluer  
Senior Manager, External Codes & Standards/NAM  
Schneider Electric Information Technology  
3903 Walden Way  
Dallas, Texas 75287  
Stephen.mclcuer@schneider-electric.com  
+1 972 306 3154

I am the proponent of Proposal 12-114

Statement identifying the particular action to which the appeal relates

This appeal relates to:
- Motion 70-21,
- Proposal 12-114,
- Proposal 12-129 and
- Comment 12-60.

Argument setting forth the grounds for the appeal

Although passed by 72 percent of the assembly at the Association Technical Meeting in June, Motion 70-21 came just short of the 2/3 majority vote needed to recommend approval of the Association Action by the Technical Committee.

In an e-mail note to the panel members on July 2nd, chairman Croushore informed the Panel that if motion continues to fail, the text will revert back to the text in the 2011 NEC. Such an outcome would contradict the wishes of both CMP-12 and the NFPA 75 Technical Committee, all of whom are in agreement with the intent of the proposal. The disagreement is over the conditions that must be met.

Code Making Panel 12 agreed unanimously (13-0) with the change to permit a procedure to control the cessation of air circulation within a room or zone when the ITE space is designated as a critical operations data system.
The NFPA 75 Technical Committee and NEC CMP-12 all agree that a means is permissible to control when a shutdown is automatic and when a shutdown can be by some method other than automatic.

The only discussion between this motion and the Wysocki motion is with respect to the conditions that must be met in order to implement the exception in 645.4(2).

The Wysocki motion argues that unplanned shut-down of all data centers can cause serious damage to the mission of the data center and have the potential to threaten life safety, even if the data center is not designated as a critical operations data center under 645.10(B).

Neither the Panel nor the Proposer (Wysocki) wants to return to the language in the 2011 NEC; that would be a step backward.

**Statement of the precise relief requested**

I support the Wysock proposal. However, if it is the action of the Standards Council to affirm the Panel Action to reject Motion 70-21, I request is that action of Panel 12 on Proposal 12-114 be permitted to stand. That action editorially revised the text of 645.4(2) and added an exception to the requirement that activation of a smoke detector shut down the HVAC system:

**Exception:** Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.
NFPA Standards Council;

Thank you for the opportunity to comment on the appeal of Mr. McCluer related to Certified Amending Motion 70-21. I do not plan to attend the NFPA Standards Council meeting. Rather, I would like to offer the following comments regarding the appeal.

I have submitted previous comments on another appeal from Mr. Wysocki on this same CAM. Those comments were submitted by me by e-mail on July 15, 2013 and are applicable to this appeal as well. I will not repeat those comments but would like to add the following comments to this appeal.

I believe the NFPA Regulations Governing Committee projects Section 4.7 is clear regarding the action that is to occur. In my opinion, since CMP-12 did not ballot at least 2/3 affirmative on CAM 70-21 and since CAM 70-21 was passed at the Association Technical Meeting and it did identify rejecting proposal 12-114 from Mr. McCluer, the outcome would have the text for NEC 645.4(2) to be as it appears in the existing edition of the document (2011 Edition of the NEC). The final outcome is that the exception created by the panel in the Accept in Principal of Proposal 12-114 (Mr. McCluer's proposal) would not be incorporated in the 2014 NEC.

This issue does have controversy as confirmed by the negative ballot statements from CMP-12. Mr. McCluer's appeal does support those CMP-12 negative ballot statements in which these individuals wish to insert the exception (as per Proposal 12-114) into the next edition. Mr. McCluer is also correct that CMP-12 did ballot in favor of this exception at both the ROP and ROC stage of the process.

As panel chair, I believe that I have followed the NFPA process and have properly communicated to the members of CMP-12 the Rules and Regulations of the Process. I also believe that the CMP-12 members, the Correlating Committee and the NFPA Staff also acted appropriately and followed the Rules and Regulations on this issue. I also believe that I properly expressed my opinion on the topic when I spoke in support to CAM 70-21 at the Association Technical Committee meeting.

In my opinion, the Standards Council has three choices as an outcome of the two appeals on this issue:

1. Support the Mr. Wysocki's appeal and support CAM 70-21 to remove the second sentence of 645.5(E)(4) and reject Proposal 12-114,
2. Support Mr. McCluer's appeal and keep the second sentence of 645.5(E)(4) and add the exception of Proposal 12-114 to 645.4(2),
or 3. Keep the same language in both 645.5(E)(4) and 645.4(2) as in the 2011 NEC.

Thank you for the opportunity to comment on this appeal.

I hope my comments are helpful to the Standards Council on rendering a decision on this issue.

Timothy M. Croushore
Chair, National Electrical Code Making Panel 12

FirstEnergy Technologies
I agree with the appeals by McCluer and Kaufman. The action of the NITMAMs and ballots was not to delete the proposal 12-114, but to remove the changes requested to it by Comment 12-60. Proposal 12-114 should remain in its original form and result in changes to 645.4(2). This procedure is based on response to a similar situation answered in the reply below. Further interpretation of the course of these changes and their result are attached. If my analysis is correct, the expected changes are already in agreement with their appeals.

Robert Johnson
Code Panel 12
Analysis of Amendment 70-21

It has taken a lot of research to figure out exactly what the sequence of changes is, but I think it makes sense as illustrated in the following pages.

I have several comments.
- A clear presentation of the resulting text should be part of the ballot. As the attached indicates, reversion to the 2011 text is not always the result and the current ballot appear incomplete without the other changes expected in the final 2014 text.
- The ballot should describe what the voting results mean: It was unclear whether a majority or other result was necessary for approval.
- The practice of returning to the original text may be a dangerous policy since old references to other parts of the code which have been changed can have uncoordinated results.

Impact on 645.5(E)(4)

645.5(E)(4) text from 2011 code:
Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of the fire or products of combustion in the underfloor space, the circulation of air will cease.

Proposal 12-129
Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of the fire or products of combustion in the underfloor space, the circulation of air will cease.
Rejected as proposal at ROP
Proposal accepted as NITMAM 70-21
Proposal rejected by panel 12 ballot 8Jul13
Impact on 645.4(2)

Text from 2011 code:
645.4(2)
A separate heating/ventilating/air-conditioning (HVAC) system is provided that is dedicated for information technology equipment use and is separated from other areas of occupancy. Any HVAC system that serves other occupancies shall be permitted to also serve the information technology equipment room if fire/smoke dampers are provided at the point of penetration of the room boundary. Such dampers shall operate on activation of smoke detectors and by operation of the disconnecting means required by 645.10

Proposal 12-114
645.4(2)
A separate heating/ventilating/air-conditioning (HVAC) system is provided that is dedicated for information technology equipment use and is separated from other areas of occupancy. Any HVAC system that serves other occupancies shall be permitted to also serve the information technology equipment room if fire/smoke dampers are provided at the point of penetration of the room boundary. Such dampers shall operate on activation of smoke detectors and by operation of the disconnecting means required by 645.10

A heating/ventilating air-conditioning (HVAC) system is provided in one of the methods identified in 645.4(2)(a) or (b).
(a) a separate HVAC system that is dedicated for information technology equipment use and is separated from other areas of occupancy; or
(b) an HVAC system that serves other occupancies and:
(1) also serves the information technology equipment room, and
(2) provides fire/smoke dampers at the point of penetration of the room boundary, and
(3) activates the damper operation upon initiation by smoke detection alarms, by operation of the disconnecting means required by 645.10, or both.

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B)(1), a procedure shall be permitted that controls the air circulation within the room or zone.

Accepted as proposal with yellow changes

Comment 12-60

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the air circulation within the room or zone.

Rejected as comment at ROP

Comment accepted as NITMAM 70-21

Comment rejected by panel 12 ballot 8Jul13
**Fate based on ballot of NITMAM:**

Agreement failed 2/3 of panel ballot 8Jul13 which would have resulted in:

645.5(E)(4)
Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2).

645.4(2)
A heating/ventilating air-conditioning (HVAC) system is provided in one of the methods identified in 645.4(2)(a) or (b).
(a) a separate HVAC system that is dedicated for information technology equipment use and is separated from other areas of occupancy; or
(b) an HVAC system that serves other occupancies and:
(1) also serves the information technology equipment room, and
(2) provides fire/smoke dampers at the point of penetration of the room boundary, and
(3) activates the damper operation upon initiation by smoke detection alarms, by operation of the disconnecting means required by 645.10, or both.

This means ventilation underfloor may continue during smoke detection, but must be isolated from other areas.

**Do not agree was result of ballot 8Jul13. Expected 2014 text:**

645.5(E)(4)
Ventilation in the underfloor area is used for the information technology equipment room only, except as provided in 645.4(2). The ventilation system shall be so arranged, with approved smoke detection devices, that upon the detection of the fire or products of combustion in the underfloor space, the circulation of air will cease.

645.4(2)
A heating/ventilating air-conditioning (HVAC) system is provided in one of the methods identified in 645.4(2)(a) or (b).
(a) a separate HVAC system that is dedicated for information technology equipment use and is separated from other areas of occupancy; or
(b) an HVAC system that serves other occupancies and:
(1) also serves the information technology equipment room, and
(2) provides fire/smoke dampers at the point of penetration of the room boundary, and
(3) activates the damper operation upon initiation by smoke detection alarms, by operation of the disconnecting means required by 645.10, or both.

Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the air circulation within the room or zone.

**Reverts, not to original 2011 text, but to text as modified by proposal 12-114 without comment 12-60 changes**

This means underfloor ventilation must be terminated but in CODSs may be delayed with a procedure.
Standards Council Appeal on Motion 70-21

In accordance with the NFPA Standards Directory section 1.6.3, I am appealing the action on Motion 70-21 and the related Proposals 12-114, 12-129 and Comment 12-60.

Name, affiliation, and address of the appellant

Stanley Kaufman, Ph.D.
CableSafe, Inc.
PO Box 500082
Atlanta, GA 31150-0082
cablesafe@bellsouth.net

I am representing The Society of the Plastics Industry. I represent SPI on NEC Panel 12 and on the Technical Committee on Electronic Computer systems.

Statement identifying the particular action to which the appeal relates

This appeal relates to motion 70-21, Proposals 12-114, 12-129 and Comment 12-60.

Argument setting forth the grounds for the appeal

Motion 70-21 did not achieve the 2/3 majority vote needed to recommend approval of the Association Action by the Technical Committee. I was one of the Panel 12 members who cast a negative vote.

In an e-mail note to the panel members on July 2nd, chairman Croushore informed the Panel that if motion continues to fail, the text will revert back to the text in the 2011 NEC; that’s a very undesirable outcome because the Panel and the Proposer (Wysocki) want relief from the requirement to completely shut down the HVAC system upon activation of a smoke detector. The disagreement was over whether to strike the requirement without any conditions or to make an exception provided some conditions are met. The Panel wanted conditions and Wysocki wanted none.

Neither the Panel nor the Proposer (Wysocki) wants to return to the language in the 2011 NEC; that would be a step backward.
Statement of the precise relief requested

The relief that I request is that action of Panel 12 action on Proposal 12-114 be permitted to stand. That action editorially revised the text of 645.4(2) and added an exception to the requirement that activation of a smoke detector shut down the HVAC system:

   Exception: Where information technology equipment is installed in a critical operations data system in compliance with 645.10(B), a procedure shall be permitted that controls the cessation of the air circulation within the room or zone.

Request for a hearing.

I request a hearing at the Standards Council Meeting on July 30, 2013.

July 11, 2013

[Signature]
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-22)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 12-65

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS/HAS NOT achieved the necessary 3/4 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is [12 (eligible to vote) – ___ (ballot not returned) – ___ (abstention) = ___ × 0.75 = ___]

___ Eligible to Vote
___ Not Returned

___ Approve
___ Do Not Approve
___ Abstain

CC Action: PASS/FAIL

CMP 12 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS achieved the necessary 2/3 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 8 [13 (eligible to vote) – 1 (ballots not returned) – 0 (abstentions) = 12 × 0.66 = 7.92]

13 Eligible to Vote
1 Not Returned (White)

11 Agree (Kaufman w/comment)
1 Does Not Agree (Hedges)
0 Abstain

CMP Action: PASS
Amendment: Accept Comment 12-65

☐ Agree

If you agree with this amendment, the recommendation will be to revise 645.4 to read as follows:

645.4 Special Requirements for Information Technology Equipment Room. This article shall be permitted to provide alternate wiring methods to the provisions of Chapter 3 and Article 708 for power wiring, Parts I and III of Article 725 for signaling wiring, and Parts I and V of Article 770 for optical fiber cabling when all of the following conditions are met:

... 

☐ Do Not Agree*

If you do not agree with this amendment, the recommendation is to return to previous edition text. The existing text reads as follows:

645.4 Special Requirements for Information Technology Equipment Room. This article shall be permitted to provide alternate wiring methods to the provisions of Chapters 1 through 4 for power wiring, 725.154 for signaling wiring, and 770.113(C) and Table 770.154(a) for optical fiber cabling when all of the following conditions are met:

...

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

I Agree with Panel CMP-12 To reject and Agree with Panel Statement 12-65

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to kshea@nfpa.org or via fax to 617-984-7070.

Signature: _______________________

Name - Please Print: Thomas J. Hedges

Date: 6/7/13
Amendment: Accept Comment 12-65

☐ X Agree  If you agree with this amendment, the recommendation will be to revise 645.4 to read as follows:

645.4 Special Requirements for Information Technology Equipment Room. This article shall be permitted to provide alternate wiring methods to the provisions of Chapter 3 and Article 708 for power wiring, Parts I and III of Article 725 for signaling wiring, and Parts I and V of Article 770 for optical fiber cabling when all of the following conditions are met:

... 

☐ Do-Not-Agree* If you do not agree with this amendment, the recommendation is to return to previous edition text. The existing text reads as follows:

645.4 Special Requirements for Information Technology Equipment Room. This article shall be permitted to provide alternate wiring methods to the provisions of Chapters 1 through 4 for power wiring, 725.154 for signaling wiring, and 770.113(C) and Table 770.154(a) for optical fiber cabling when all of the following conditions are met:

... 

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

Affirmative comment

Motion 70-22 would not have been submitted if the Correlating Committee had not reversed the CMP 12 action on Comment 12-56a. Think of the motion as “Plan B” since Plan A was shot down.

The motion deals with proposals and comments that address the concern that the term critical operations data system could be interpreted to be related to (require) a critical operations power system in accordance with Article 708, Critical Operations Power Systems.

CMP 12 developed its own comment to establish an Informational Note:

Informational Note: The designation of Critical Operations Data System does not necessarily imply the site requires a Critical Operations Power System, nor does the use of a Critical Operations Power System imply the installation is a Critical Operations Data System.

The CMP 12 comment was rejected by the Correlating Committee because it violated the NEC Style Manual.
Acceptance of motion 70-22 will adopt text (not an informational note) to clarify that Article 645, Information Technology Equipment, is permitted to modify the requirements of Article 708:

Please return as soon as possible, but no later than **Wednesday, June 26, 2013** to kshea@nfpa.org or via fax to 617-984-7070.

Signature:

Name - Please Print: Stanley Kaufman

Date: June 17, 2013
Recommendation:

Comment on Proposal No: Critical Operations Submitter: (645.10(B))

12-136 Log #2666 NEC-P12 Final Action: Reject

Submitter: Ralph Transue, The RJA Group, Inc. Comment on Proposal No: 12-136 Recommendation: Add and Article 708 after “Chapters 1 through 4”.

Substantiation: I submitted proposal 12-136 because some users may associate a critical operations data system with Article 708, Critical Operations Power Systems. Applying Article 708 to a data center would apply many untenable requirements to the data center, so many that the user would choose to opt out of Article 645. The text recommended by this comment is based on Dr. Stanley Kaufman’s affirmative ballot statement on proposal 12-136.

Panel Meeting Action: Reject

Panel Statement: CMP-12 understands that the comment is related to 645.4 and not 645.10(B).

CMP-12 disagrees that adding the submitter’s text to 645.4 provides relief from Article 708. Only Chapters 1 through 4 of the NEC are modified by Article 645.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

Backup Proposal 12-136

12-136 Log #2666 NEC-P12 Final Action: Reject

Submitter: Ralph E. Transue, The RJA Group, Inc. Recommendation: Revise text to read as follows:

(B) Critical Operations Constantly Attended Data Systems. Remote disconnecting controls shall not be required for critical operations constantly attended data systems when all of the following conditions are met:

(Continue the remainder of the section unchanged.)

Substantiation: Three reasons justify this proposal:

1-The term critical is inexact since criticality is determined by different persons or groups based on differing factors. As former Chair of the NFPA 76 TC and current Chair of the NFPA 75 TC, I can advise that those committees minimize the use of the term critical since it means different things to different users of those Standards.

2-The use of NFPA 75 on ITE is based on a risk analysis as required in Chapter 4 of NFPA 75. Upon such analysis, users may decide to implement the requirements of the Standard for fire protection of ITE facilities. The required risk analysis considers the factors of criticality of the equipment and facility. A redundant decision of criticality as required by 645.10(B) is not necessary. The choice between the two methods of disconnect, 645.10(A) or (B), should be permitted to all users who decide to implement the requirements of NFPA 75 without the need for a redundant decision on criticality.

3-Avoid any confusion or unintended connection between Articles 645 and 708, the origins and purposes of which are very different.

Panel Meeting Action: Reject

Panel Statement: The proposer is attempting to change the title of 645.10(B) to constantly attended data systems. The current title of this section is “Critical Operation Data Systems” it’s an appropriate title for this type of facility. Further this title was chosen in the 2011 cycle by a balanced team of individuals in a consensus based task group.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

Comment on Affirmative:

KAUFMAN, S.: The submitter’s concern about unintended connection between Articles 645 and 708 could have been addressed by accepting this proposal in principle in part and adding “and Article 708” after “Chapters 1 through 4” in 645.4.

12-136 Log #2666 NEC-P12 Final Action: Reject

Recommendation:

Submitter: Stanley Kaufman, CableSafe, Inc. Comment on Proposal No: 12-112 Recommendation: Change the panel action from Accept to Accept in Principle

This article shall be permitted to provide alternate wiring methods within the information technology room and under the raised floor to the provisions of Chapter 2, Chapters 1 through 4 for power wiring, Parts I and III of Article 725 for signaling wiring, and Parts I and V of Article 770 for optical fiber cabling when all of the following conditions are met:

Substantiation: The recommended revision provides clarity and reflects the titles of the Articles. The title of Chapter 1 is “General”; Chapter 2, “Wiring and Protection”; Chapter 3, “Wiring Methods; and Chapter 4 “Equipment for General Use”.

The intent of Article 645 is to provide “alternate wiring methods” that are commonly found in Chapter 3 of the National Electrical Code. Article 645 provides an option to Chapter 3 wiring methods when the facility and installation meets the qualification requirements contained within Article 645 to allow such an option. The non-wiring method requirements contained in Article 645 do supplement or modify the requirements contained within Chapters 1, 2, and 4 of the NEC as per 90.3.

This is one of several Comments prepared by the CMP 12 Article 645 Task Group consisting of CMP 12 members Tom Brown, Tim Croushore, Tom Hedges, Bob Johnson, Stan Kaufman, John Kovacek, Todd Lottmann and Jose Salazar.

Panel Meeting Action: Accept in Principle

Revise the first paragraph of 645.4 to read as follows:

645.4 Special Requirements for Information Technology Equipment Room. This article shall be permitted to provide alternate wiring methods to the provisions of Chapter 3 for power wiring, Parts I and III of Article 725 for signaling wiring, and Parts I and V of Article 770 for optical fiber cabling when all of the following conditions are met:

Panel Statement: CMP-12 revises the submitter’s text to remove reference to “under the raised floor” and remove reference to “the information technology room”. CMP-12 revises the text to make it concise.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

Related Proposal 12-112

12-112 Log #677 NEC-P12 Final Action: Accept

Submitter: Stanley Kaufman, CableSafe Inc. Recommendation: Revise text to read as follows:

This article shall be permitted to provide alternate wiring methods to the provisions of Chapters 1 through 4 for power wiring, Parts I & III of Article 725 225-154 for signaling wiring, and Parts I & V of Article 770 770.113(C) and Table 770.154(a) for optical fiber cabling when all of the following conditions are met:

Substantiation: Article 645 is permitted to modify the wiring methods in Articles 725 and 770. The current text which permits “alternate wiring methods to the provisions of 725.154 for signaling wiring, and 770.113(C) and Table 770.154(a) for optical fiber cabling” is too narrow. If fact, Article 645 modifies wiring provisions that are outside of 725.154, 770.113(C) and Table 770.154(a).

For example, section 645.5(E) Securing in Place alters the requirements for securing for class 2, class 3 and optical fiber cables. Section 770.24, which is in Part I of Article 770, requires compliance with 300.11, Securing and Supporting.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

July 22, 2013

Supplemental Agenda July 29-August 1, 2013

Page 621 of 1861
Recommendation: 

**Comment on Proposal No:** Constantly Attended Data Systems

**Final Action:** Reject

**Backup Proposal 12-136**

**Final Action:** Reject

**Panel Meeting Action:** Reject

**Panel Statement:** CMP-12 understands that the comment is related to 645.4 and not 645.10(B).

**Affirmative:** 13

**Number Eligible to Vote:** 13

**Ballot Results:** Affirmative: 13

**Submitter:** Ralph Transue, The RJA Group, Inc.

**Reconsideration:** Remote disconnecting controls shall not be required for critical operations constantly attended data systems when all of the following conditions are met:

**Substantiation:**

1. The term critical is inexact since criticality is determined by different persons or groups based on differing factors. As former Chair of the NFPA 76 TC and current Chair of the NFPA 75 TC, I can advise that those committees minimize the use of the term critical since it means different things to different users of those Standards.

2. The use of NFPA 75 on ITE is based on a risk analysis as required in Chapter 4 of NFPA 75. Upon such analysis, users may decide to implement the requirements of the Standard for fire protection of ITE facilities. The required risk analysis considers the factors of criticality of the equipment and facility. A redundant decision of criticality as required by 645.10(A) is not necessary. The choice between the two methods of disconnect, 645.10(A) or (B), should be permitted to all users who decide to implement the requirements of NFPA 75 without the need for a redundant decision on criticality.

3. Avoid any confusion or unintended connection between Articles 645 and 708, the origins and purposes of which are very different.

**Panel Meeting Action:** Accept

**Panel Statement:** The proposer is attempting to change the title of 645.10(B) to constantly attended data systems. The current title of this section is “Critical Operation Data Systems” it is an appropriate title for this type of facility. Further this title was chosen in the 2011 cycle by a balanced team of individuals in a consensus based task group.

**Affirmative:** 13

**Number Eligible to Vote:** 13

**Ballot Results:** Affirmative: 13

**Submitter:** Ralph Transue, The RJA Group, Inc.

**Comment on Affirmative:**

KAUFMAN, S.: The submitter’s concern about unintended connection between Articles 645 and 708 could have been addressed by accepting this proposal in principle in part and adding “and Article 708” after “Chapters 1 through 4” in 645.4.
two being Dr. Kaufman, okay. After Mr. McCluer speaks about his proposal, he cannot engage in the deliberation of the discussion, okay. So what happens is only the Committee heard the negative during the deliberation.

So I believe that CMP 12 may not have landed in the proper place. That is why I support the motion.

MR. BELL: Thank you. Further discussion?

Seeing no one at the microphone, we'll go to the motion on the floor which is to accept Proposal 12-129 and dependent Comment 12-60. Press 1 if you're in favor of the motion and 2 if you're opposed. Vote now. 5 seconds.

Voting is closed. Motion passes.

We'll move on to Sequence Number 70-22.

Is there a motion? Microphone 2.

DR. KAUFMAN: Yes. I am Dr. Stanley Kaufman.

I'm here for Ralph Transue as a designated representative. I move to accept Comment 12-65.

MR. BELL: Okay. The motion on the floor is to accept Comment 12-65, and you are a designated representative. Is there a second?

A VOICE: Second.
made had not the Correlating Committee reversed Panel 12's action on Comment 12-56(A). So we kind of think of this as Plan B since Plan A was shot down.

The motion deals with proposals and comments that address the concern that the term "critical operations data system" could be interpreted to be related, i.e., require a critical operations power system in accordance with Article 708, Critical Operations Power Systems.

In response to Comment 12-65, which was rejected, the panel generated 12-56(A) and put a new informational note which says, "The designation of critical operations data system does not necessarily imply the site requires a critical operations power system nor does the use of a critical operations power system imply the installation is a critical operations data system."

Unfortunately, the Correlating Committee overrode that because they thought it had a requirement. So we're falling back on asking that, instead, the original Comment 12-65 be passed.

That will achieve the same purpose but in a different place.

MR. BELL: Thank you. Mr. Johnston?

MR. JOHNSTON: Thank you, Mr. Chair. I once again would like to defer to the Chair of NEC Code Panel 12, Mr. Tim Croushore, please.

MR. CROUSHORE: Hello. My name is
Timothy M. Croushore. I work for FirstEnergy. I represent the electric utility industry through the Edison Electric Institute. I am the Chair of National Electrical Code-Making Panel 12. I rise and speak in support of the motion. I would recommend the Association membership support the approval of this motion.

As Chair of Code-Making Panel 12, it is my opinion that the NFPA regulations governing committee projects were followed during both the proposal and comment stage by the Technical Committee. In my opinion, the Technical Committee did land in the proper place with this issue. During the comment stage, the Technical Committee created Comment 12-56(A) that inserted an informational note to aid in the interpretation of the issue. CMP 12 carefully worded the informational note trying to convey information without breaking the rules of informational notes. However, the Correlating Committee upon their review said the informational note contained the requirements and rejected Comment 12-56(A) that's found on Page 70-321 of the ROC. The technical issue of this motion and Comment 12-65 is how Article 645, Information Technology Equipment, relates to Article 708, Critical Operations Power Systems.

Many times a critical operations facility
will have both an Article 708, Critical Operations Power System and Installation and an Article 645, Critical Operations Data System. Since both articles contain alternate information on installation and wiring methods, an interpretation issue arises as to which Article applies to the power wiring within the data center.

Further, the definitions of both these systems in the .2 section of both the articles are very similar which adds to the controversy and potential interpretation issue.

In my opinion, CMP 12 sees these two systems as two unique systems, wiring for an Article 645 system in an Article 645 space could follow Article 645 for wiring, and an Article 708 system should follow Article 708.

The crux of the issue is why CMP 12 chose the informational note route. By definition, both articles have an optional component for business continuity. A business owner could choose to beef up the wiring in their particular data center and implement the wiring methods of Article 708 in that space. However, the panel wanted to make it clear that if the facility had an Article 708 space or spaces, these wiring techniques of Article 708 were not mandatory in the data center even if the data center had a critical operations data system.

The outcome of the Certified Amending Motion basically makes Article 645 independent of...
the requirements of Article 708. And since the Correlating Committee rejected -- since the Correlating Committee's rejection removed the informational note, I would recommend the Association membership support the Certified Amending Motion. I also believe the Correlating Committee acted appropriately also. Thank you.

MR. BELL: Thank you. Microphone 3.

MR. BAIRD: Yes, Mr. Chairman. Robert Baird, Independent Electrical Contractors Association speaking for the Electrical section.

After consideration at our meeting on Tuesday, the Electoral section voted to support this motion.

MR. BELL: Thank you. Any further discussion? Seeing no one at the mics, we'll move to the motion on the floor which is to accept Comment 12-65.

Press 1 if you're in favor of the motion and press 2 if you're opposed. Vote now. 5 seconds.

Voting is closed. Motion passes.

Move on to Motion Sequence Number 70-23.

MS. THOMPSON: Mr. Chairman, my name is Elaine Thompson. I'm representing the Steel Tube Institute, speaking in favor of the motion to accept Comment 13-47.

May I ask if we're able to group some of these? There were 12 CAMs. We have about --

MR. BELL: No. We're going to work
AMENDMENT (70-22)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 12-65

CC FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS achieved the necessary 3/4 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 [12 (eligible to vote) – 0 (ballots not returned) – 0 (abstention) = 12 × 0.75 = 9]

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  0 Yes correlation issues
  12 No correlation issues
  0 Abstain

CC Action: PASS

CMP 12 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS achieved the necessary 2/3 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 8 [13 (eligible to vote) – 1 (ballots not returned) – 0 (abstentions) = 12 × 0.66 = 7.92]

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<td>1</td>
</tr>
</tbody>
</table>

  11 Agree (Kaufman w/comment)
  1 Does Not Agree (Hedges)
  0 Abstain

CMP Action: PASS
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-26)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 13-54 to modify a part of Proposal 13-68

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS/HAS NOT** achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is \( 12 \) [eligible to vote] – \( 2 \) (ballot not returned) – \( 0 \) (abstention) = \( 18 \times 0.75 = 13.5 \]

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<td>Do Not Approve</td>
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<tr>
<td>Abstain</td>
<td></td>
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CC Action: PASS/FAIL

CMP 13 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is **12** [20 (eligible to vote) – 2 (ballots not returned) – 0 (abstentions) = 18 \( \times 0.66 = 11.88 \)]

<table>
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<th>Eligible to Vote</th>
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<td>Do Not Agree</td>
<td>(Adams, Brown, Constantine, Currin, Jr., Froemming, Keenan, Little, Neeser, White)</td>
</tr>
<tr>
<td>Abstain</td>
<td></td>
</tr>
</tbody>
</table>

CMP 13 Action: FAIL
MEMORANDUM
(AMENDMENT)

TO: Code-Making Panel 13
FROM: Mark Earley, Staff Liaison
DATE: July 8, 2013
SUBJECT: Final Results of Letter Ballot on Amendment 70-26 on the Proposed 2014 edition of NFPA 70

Amendment: Accept Comment 13-54 to Modify Part of Proposal 13-68

The final results of balloting are as follows:

20 Members Eligible to Vote
2 Ballots not Returned (Spina and Tobias, Jr.)

9 Agree
9 Do Not Agree (Adams, Brown, Constantine, Currin, Jr., Alt. Froemming for Prin. Olney, Keenan, Little, Nesser, White)
0 Abstentions

According to 4.7 in the NFPA Regs, the final results show this Amendment HAS NOT achieved the 2/3 majority vote needed to recommend approval of the Association Action by the Technical Committee.

The number of votes needed to recommend approval of the Association Action is 12.

(20 eligible to vote - 2 not returned - 0 abstentions = 18 × 0.66 = 11.88)

cc: Nancy Walker
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-26

Amendment: Accept Comment 13-54 to modify a part of Proposal 13-08

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Reggs"). Under the Reggs, if an Amendment fails the ballot of the Technical Committee, its text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(b). Please note that the Amendment that is the subject of this ballot recommends 695.6(A)(2)(D)(1) be returned to previous edition text. In this case, the result is:

(1) Be renumbered in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree
☒ Do Not Agree*
☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

I agree with the substantiation, the CP, your text, the accept in principle

________________________
Signature:    Martin P. Adams

________________________
Name - Please Print: Martin D. Adams

Date: 6-19-13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Sites, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: ksites@nfpa.org

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 631 of 1861
Amendment: Accept Comment 13-54 to modify a part of Proposal 13-58

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.6(A)(2)(d)(1) be returned to previous edition text. In this case, the result is:

(1) Be encased in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

A thickness of 2 in. of concrete does not achieve a minimum 2 hour fire rating. This issue should be addressed with Public or Committee Input during the next revision cycle to the NEC.

Signature: ______________________

Name - Please Print: James L. Brown

Date: 6/18/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-26

Amendment: Accept Comment 13-54 to modify a part of Proposal 13-68

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.6(A)(2)(d)(1) be returned to previous edition text. In this case, the result is:

(1) Be encased in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

No evidence that 2" of concrete is sufficient for a 2hr Fire Rating.
Amendment: Accept Comment 13-54 to modify a part of Proposal 13-68

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends §95.6(A)(2)(d)(1) be returned to previous edition text. In this case, the result is:

(1) Be encased in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

Refer to ACI 216.1-97 Table 2.1. To provide 2 hour protection requires, depending upon concrete type between 3.6"-5.0" thickness to provide a 2 hour protection. It is incorrect to imply that 2 inches of concrete is equivalent to a two hour fire rating or other method of protection that actually do provide a two hour fire rating.

____________________________________________________

Signature: ____________________________

Name - Please Print: Richard D. Currin Jr.

Date: 7/2/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Battery March Park

July 22, 2013
Amendment: Accept Comment 13-54 to modify a part of Proposal 13-68

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.6(A)(2)(d)(1) be returned to previous edition text. In this case, the result is:

(1) Be encased in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

CMP 13 has already debated this issue in length.

Signature: __________________________

Name - Please Print: Steve Freihofer

Date: 6/25/13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
Amendment: Accept Comment 13-54 to modify a part of Proposal 13-68

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.6(A)(2)(d)(1) be returned to previous edition text. In this case, the result is:

(1) Be encased in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

X ☐ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

The American Concrete Institute and American Society for Civil Engineers agree with foregoing and through existing building codes, that 2 inches of concrete will not provide a 2 hour fire resistance rating. If the committee desires to have conductors survive for two hours in an emergency situation, then the present 2 inch requirement is not adequate and must change.

Signature: [Signature]

Name - Please Print: [Name]

Date: [Date] 7/24/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: keegan@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-26

Amendment: Accept Comment 13-54 to modify a part of Proposal 13-68

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.6(A)(2)(d)(1) be returned to previous edition text. In this case, the result is:

(1) Be encased in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

This issue was thoroughly debated over the last two NEC cycles. The existing reference to "2 inches" is based on the physical protection requirements in 230.6 for service conductors. Substantiation provided for this revision included NFPA and ICC references that clearly illustrated that "2 inches" of concrete was inadequate.

The Correlating Committee and Standards Council should develop a task group to address this issue before the next NEC cycle.

Signature: Linda J. Little

Name - Please Print: Linda Little

Date: 6/26/13
**Amendment:** Accept Comment 13-54 to modify a part of Proposal 13-58

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.6(A)(2)(d)(1) be returned to previous edition text. In this case, the result is:

1. Be encased in a minimum 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

X Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

This topic was debated during this and the previous cycle with supporting material from NFPA and ICC which substantiate 2 inches of concrete is not sufficient.

Signature: [Signature]

Name - Please Print: Dan Neeser

Date: June 25, 2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
Matthews, Diane

From: Jim White [vettn71@aol.com]
Sent: Tuesday, June 25, 2013 6:23 PM
To: Shea, Kimberly
Subject: CMP13 Ballots

Kimberly

I am in Savannah at the NFPA 70E committee meetings until Monday. Please accept this email as my ballot until I can scan and send the actual ballot forms.

I do not agree with the proposed changes. There was considerable discussion and evidence concerning the need for thicker concrete above grade. It was discussed at the CMP13 meeting about the possibility of a task group to investigate this more thoroughly. I still believe this is needed.

Best Regards

Jim

Although Jim is a member of the NFPA Technical Committee for NFPA 70E "Standard for Electrical Safety in the Workplace", NFPA 70B "Recommended Practice for Electrical Equipment Maintenance", NFPA NEC Code Making Panel 13 and is on the ASTM F-18 Committee "Electrical Protective Equipment for Workers" the views and opinions expressed in this message are purely the authors and shall not be considered an official position of NFPA, ASTM or any of their technical committees and shall not be considered to be, nor be relied upon as a formal interpretation or promotion of NFPA or ASTM.
ACCEPT Comment 13-54

13-54 Log #1213 NEC-P13 Final Action: Accept in Principle (695.6(B))

Submitter: James S. Nasby, Skokie, IL

Comment on Proposal No: 13-68

Recommendation: Do not remove the option of 2 in. of concrete. Do not delete said text.

Substantiation: I agree with the negative vote comment by J. Degnan. Further, also, 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many additions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2 conduit installation: plus twice the floor area. While I didn’t agree with increasing the requirements for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL listed wiring. The concept of 4 inches of concrete equated to a 2 hour fire-rating has not been public review.

Panel Meeting Action: Accept in Principle

Panel Statement: See the panel action and statement on comment 13-46. CMP 13 does not agree with the submitter’s substantiation.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 19 Negative: 2

Explanation of Negative:


Backup Proposal 13-68

13-68 Log #10 NEC-P13 Final Action: Accept in Principle (695.6(B))

Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows: 695.6(B) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

1. Be enased in a minimum 60 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.

2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.9(D) of this Code.

Submitter: Technical Correlating Committee on National Electrical Code®

Recommendation: The Technical Correlating Committee directs that this comment be reported as “Hold” as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equated to 2 hour fire-rating has not had public review.

Substantiation: This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept in Principle

Revise 695.6(A)(2)(d) to read as follows:

1. Be enased in a minimum 50 mm (2 in.) of concrete.

2. Be protected by a fire-rated assembly consisting of gypsum wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

3. To renumber as (2).

Informational Note is unchanged.

Panel Statement: CMP-13 agrees with the submitter that there is no evidence that 2 in. of concrete will attain a 2-hr fire rating. The language is consistent with language throughout the NFPA standards pertaining to construction requirements.

Number Eligible to Vote: 18

Ballot Results: Affirmative: 16 Negative: 2

Explanation of Negative:

DEGNAN, J.: While test data shows that 2" of concrete limits to protect when subjected to a fire for 2 hours, fire isn’t the only consideration. In some egress scenarios, concrete encasement may offer physical protection that would prove more valuable than a system only designed for 2 hours fire. ODE, M.: See the Negative Statement in Proposal 13-67.

Referenced Comment 13-46

13-46 Log #558 NEC-P13 Final Action: Accept in Principle (695.6(A)(2)(d)(1))

Submitter: Richard E. Loyd, Sun Lakes, AZ

Comment on Proposal No: 13-68

Recommendation: Reconsider and retain (1) be enased in 50mm (2 inches) of concrete.

Substantiation: I agree with Degnan and Ode’s comments on their negative voting.

This requirement has been in the code continuously since Article 695 first appeared in the NEC. The submitter is in error as the 2 hour fire rating being discussed was never a condition for using 695.6(A)(2)(d)(1). The committee’s substantiation is also in error in comparing the 2 inches of concrete with a 2 hr fire rating.

There has been no substantiation to remove this useful condition of use, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(d) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:

1. Be enased in a minimum 60 100 mm (2 4 in.) of concrete.

2. Be installed under not less than 50 mm (2 in.) of concrete on grade.

3. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

4. Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception to (A)(2)(d): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Statement: The committee acknowledges that 2 in. of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 in. of concrete concept that was submitted during the 2011 cycle.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:

DEGNAN, J.: The submitter commented in support of retaining the 2" of concrete that is in the 2011 code, the panel’s action to double the distance is not accepting the principle of the submitter’s proposal, it is completely changing the submitter’s intent.

While temperature performance issues have been identified with 2" of concrete, it is clear that they will be resolved with 4" of concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some
limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel’s assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.

Recommended Proposal 13-67

13-67 Log #1118 NEC-P13 Final Action: Accept in Principle

(695.6(A)(2)(d)(1))

Submitter: Thomas Guida, TIG Services, Inc.

Recommendation: Accept the panel action on ROC 13-102 from the 2010 Annual Revision Cycle.

Substantiation: The fire protection requirement for critical circuits in Article 695 is 2-hour. Although 2 inches of concrete was used to meet a 1-hour fire protection requirement, it is well documented in the IBC and NFPA Fire Protection Handbook that typically 150 mm (6 inch) thickness of concrete is used for a 3-hour rating in section 450.42. This note was also added to 110.31A. Since 2 inches of concrete was previously used as acceptable for 1-hour, 100 mm (4 in) was added in the fine print for the requirement of 2-hours.

The submitter should have provided a Fact Finding Study on the different types of concrete.

One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

Referenced Proposal 13-102 and Backup 13-102 (from A2010)

13-102 Log #1642 NEC-P13 Final Action: Hold

(695.6(B))

TCC Action: The Technical Correlating Committee directs that this comment be reported as “Hold” as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equated to a 2 hour fire-ratings has not had public review.

Submitter: Thomas Guida, TIG Services, Inc.

Comment on Proposal No: 13-102

Recommendation: Accept proposal 13-102 with the following additional fine print note.

(695.6(B)) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

1. Be encased in a minimum 50 mm (2 in) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.
2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).
3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

SPINA, M.: Although information was received with these comments this information was new material which has not had opportunity for adequate public review and comment.

Referenced Comment 13-102 and Backup 13-102

13-102 Log #2910 NEC-P13 Final Action: Reject

(695.6(B))

Submitter: Thomas Guida, TIG Services, Inc.

Recommendation: Revise text to read as follows.

(695.6(B)) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and supply only loads that are directly associated with the fire pump system, and
they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

1. Be encased in a minimum 50 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.

2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.9(D) of this Code.

Substantiation: Methods (2) and (3) are 2 hour fire ratings. Method (1) should be changed to be consistent, hence the addition of the 2 hour rating. In various applications e.g. slabs versus columns or with different concrete, e.g. lightweight, siliceous, or carbonate; different concrete thickness may be required to meet the rating, hence the deletion of the 2 inches of concrete.

Panel Meeting Action: Reject
Panel Statement: The 2 in. of concrete has provided the industry with a prescriptive benchmark that has served the industry well. The substantiation does not demonstrate that use of 2 in. of concrete has compromised the integrity of the circuit. The recommendation does not provide an alternative prescriptive requirement that can be easily applied.

Number Eligible to Vote: 14
Ballot Results: Affirmative: 14
13-54 Log #1213 NEC-P13 Final Action: Accept in Principle  
(695.6(B))

Submitter: James S. Nashy, Skokie, IL  
Comment on Proposal No: 13-68  
Recommendation: Do not remove the option of 2 in. of concrete. Do not delete said text.  
Substantiation: I agree with the negative vote comment by J. Degnan. Further, also, 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many additions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2 conduit installation; plus twice the floor area. While I didn't agree with increasing the requirements for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring with 2" of concrete.

Panel Meeting Action: Accept in Principle  
Panel Statement: See the panel action and statement on comment 13-46. CMP 13 does not agree with the submitter's substantiation.

Number Eligible to Vote: 21  
Ballot Results: Affirmative: 19 Negative: 2  
Explanation of Negative:  

Backup Proposal 13-68  
13-68 Log #10 NEC-P13 Final Action: Accept in Principle  
(695.6(B))

Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows:  
695.6(B) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:  
1) Be encased in a minimum 50 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.  
2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).  
3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating  
FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.  
Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.9(D) of this Code.  
Submitter: Technical Correlating Committee on National Electrical Code®  
Recommendation: The Technical Correlating Committee directs that this comment be reported as "Hold" as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equated to a 2 hour fire-rating has not been accepted by the panel. CMP 13 disagrees with the submitter’s intent.

Number Eligible to Vote: 21  
Ballot Results: Affirmative: 18 Negative: 3  
Explanation of Negative:  
DEGNAN, J.: The submitter commented in support of retaining the 2" of concrete that is in the 2011 code, the panel’s action to double the distance is not accepting the principle of the submitter’s proposal, it is completely changing the submitter’s intent.

While temperature performance issues have been identified with 2" of concrete, it is believed that they will be resolved with 4" concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: "Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall." Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some
limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-hour requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel’s assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accommodate a proposal to change this time honored requirement.

Referenced Proposal 13-67

13-67 Log #1118 NEC-P13 Final Action: Accept in Principle
(695.6(A)(2)d(1))

Submitter: Thomas Guida, TlG Services, Inc.
Recommendation: Accept the panel action on ROC 13-102 from the 2010 Annual Revision Cycle.
Substantiation: The fire protection requirement for critical circuits in Article 695 is 2-hour. Although 2 inches of concrete was used to meet a 1-hour fire protection requirement, it is well documented in the IBC and NFPA Fire Protection Handbook that concrete encasement is not sufficient for 2-hour fire protection. The panel action provided a prescriptive value (4 inches) of concrete that allows for objective enforcement.

Panel Meeting Action: Accept in Principle
Panel Statement: See action and statement on Proposal 13-68.
Number Eligible to Vote: 18
Ballot Results: Affirmative: 17 Negative: 1

Explanation of Negative:
ODE, M.: The Proposal did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. UL does not list concrete for a fire rating so any UL fire rated assembly would involve a complete assembly of building materials, often including concrete and other materials. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregates used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

Referenced Comment 13-102 and Backup 13-102 (from A2010)

13-102 Log #1642 NEC-P13 Final Action: Hold
(695.6(B))

TCC Action: The Technical Correlating Committee directs that this comment be reported as “Hold” as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.
The concept of 4 inches of concrete equated to a 2-hour fire-rating has not had public review.
Submitter: Thomas Guida, TlG Services, Inc.
Comment on Proposal No: 13-102
Recommendation: Accept proposal 13-102 with the following additional fine print note:
695.6(B) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

Be encased in a minimum 2 inches of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.

Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 709.9(D) of this Code.

Substantiation: Although 2 inches of concrete served the industry well for a 1 hour fire rating, the requirement is now for a 2 hour fire rating. To satisfy the panels request for more prescriptive information on the thickness of the concrete, fine print note 1 has been added. The NEC currently has fine print notes that state typically 150 mm (6 inch) thickness of concrete is used for a 3-hour rating in section 450.42. This note was also added to 110.31A. Since 2 inches of concrete was previously used as acceptable for 1-hour, 100 mm (4 inches) was added in the fine print note for the requirement of 2-hours. Additionally since concrete thickness may vary based on the type of concrete, fine print note 2 was added to provide information on this.

Ballot Results: Affirmative: 16 Negative: 2

Explanation of Negative:
ODE, M.: The Panel statement did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles and should not be changed without proper technical substantiation for this change.

SPINA, M.: Although information was received with these comments this information was new material which has not had opportunity for adequate public review and comment.

13-102 Log #2910 NEC-P13 Final Action: Reject
(695.6(B))

Submitter: Thomas Guida, TlG Services, Inc.
Recommendation: Revise text to read as follows:
695.6(B) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and...
they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

1. Be encased in a minimum 50 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.

(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.9(D) of this Code.

Substantiation: Methods (2) and (3) are 2 hour fire ratings. Method (1) should be changed to be consistent, hence the addition of the 2 hour rating.

In various applications e.g. slabs versus columns or with different concrete, e.g. lightweight, siliceous, or carbonate; different concrete thickness may be required to meet the rating, hence the deletion of the 2 inches of concrete.

Panel Meeting Action: Reject

Panel Statement: The 2 in. of concrete has provided the industry with a prescriptive benchmark that has served the industry well. The substantiation does not demonstrate that use of 2 in. of concrete has compromised the integrity of the circuit. The recommendation does not provide an alternative prescriptive requirement that can be easily applied.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14
really want to make a change that is long-standing allowed for 2 inches of concrete and has no substantiation of a problem? Please support the motion.


MR. HICKMAN: Palmer Hickman, IBEW. I would like to call the question.

A VOICE: Second.

MR. BELL: The motion on the floor is to call the question. I hear a second. So we'll move directly to that motion. Again, the motion on the floor is to call the question. Press 1 if you're in favor of the motion. Press 2 if you're opposed. Vote now. 5 seconds.

Voting is closed. Motion passes.

So we'll move directly to the motion on the floor which is to accept Comment 13-47. Press 1 if you're in favor of the motion and press 2 if you are opposed. Vote now. 5 seconds.

Voting is closed. Motion fails.

We'll entertain now Motion Sequence Number 70-26. Is there a motion for Sequence Number 70-25? Or 76 -- I mean, 70-26? 26, 25, either one. They're related motions.

MR. NASBY: My name is Jim Nasby, Columbia Engineering, representing myself. I speak in favor of that motion.

MR. BELL: Okay. And your motion is?

MR. NASBY: To accept the comment.
MR. BELL: 13-54?

MR. NASBY: One second.

MR. BELL: Hold on just one second. I'm sorry.

The motion that you want to make, Mr. Nasby, is to accept Comment 13-54; is that correct?

MR. NASBY: That's correct.

MR. BELL: So the motion is to accept Comment 13-54. Is there a second?

A VOICE: Second.

MR. BELL: There's a second. Please proceed.

MR. NASBY: My name is Jim Nasby, again, representing Columbia Engineering, but I'm representing myself. I'm a member of NFPA 20. I was a former member of Code-Making Panel 13, particularly when the change in wire protective systems was changed from one hour to two hours, and I do want to inform the Association that if you haven't seen the bulletin, that UL has removed the listing on a great number of these systems for further study. So the number of systems available is very limited.

Number one point is, throughout this process, no field problems were offered or introduced by the people wanting to increase the thickness of the concrete. They're trying to tie this concrete requirement to an hour, a requirement that's used in other systems. There's no correlation. And as they stated themselves,
there's too many variables to even think about. So
to try to place an equivalency, it doesn't make
sense.

This change was introduced in the proposal
stage to change 2 inches to 4 inches, and the panel
rejected that and added the two-hour requirement
instead. Then in the comment stage, they reversed
that out and put in -- changed it from two to four
hours. Therefore, this has not had adequate public
review because it was done in a comment stage, not

1

in a proposal stage.

Now the two-hour requirement was changed
from one hour to two hours. Part of the response
of NFPA 20 which established protective times for
the pump room, but the pump room only has to
survive one hour if it's sprinklered which is the
majority of the cases. So in most cases, two hours
is not needed even for a protective system. You
heard Ken Isman say that many times, you don't have
that much water anyway.

This requirement is extremely onerous. It
will make it -- I think there's the doorbell -- I
think it will make it very onerous for small risks
and especially for retrofitting sprinklers for
small installations like nursing homes, college
dormitories, and the like. This is a very
difficult thing to try to accomplish. And, again,
for what reason? No failures or problems, field
problems have been indicated.
The requirement for 2 inches was added in the 1980 edition of NFPA 20, by the way. That's how it got into 695.

Again, UL has voted against this change in a number of their comments. And their substantiation says trying to correlate the time with the inches of concrete for reasons that both the proponents and opponents of this motion have already stated, there's too many variables. I'm asking for support, therefore, of this motion which will increase fire protection, not reduce it because of the difficulty in both new and retrofit installations of trying to make it a 4-inch requirement particularly since no reason has been shown. Thanks.

MR. BELL: Thank you. Mr. Johnston?

MR. JOHNSTON: Thank you, Mr. Chair. Once again, I would like to defer to the Interim Chair of NEC Code Panel 13, Mr. John Kovacik, please.


I have nothing new to add. This is essentially the same issue that we've been discussing. I would like to emphasize to this body again, as I said previously, that what we have at
This point is a compromise. Both sides can consider having taken away something from this issue that should provide a certain means of satisfaction. So I urge this body to vote against the motion. Thank you.

MR. BELL: Thank you. Microphone 5.

MR. HIRSCHLER: Marcelo Hirschler, GBH International, for NAFRA. I'm speaking against the motion. This is the exact identical thing you just voted. Please do not change your vote. Be consistent with what we did. This is the exact same section. Please vote against the motion.

Thank you.


MR. CONRAD: James Conrad, RSJC. I'm on CMP 13.

Again, it's the same motion. I just wanted to clarify something that Jim Nasby mentioned. Again, this is not a one-hour versus two-hour fight. This is 2 inches versus 4 inches of concrete. And he stated that UL voted against this. That means UL should have documentation proving that 2 inches of concrete equates to a two-hour rating.

And as far as the economics for small
constructions, we gave them that allowance in the
comment stage because small dorms and small
buildings, the fire pump is on grade and they
usually run them as a service conductor under the
slab and we gave them that during the comment
period.

I speak in opposition of the motion.
Thank you, Mr. Chair.

MR. BELL: Thank you. Microphone 6 now.

MR. DAGENAIS: My name is Dave Dagenais
speaking on behalf of myself in favor of motion.

Whether we agree or disagree, 2 inches of
cement gets the fire rating that we need. The
discussion here is not similar to the first one.
And the reason that is is that the bottom line is
that this was changed in the comment -- I mean, the
comment phase. This has not had the opportunity to
hear the input from both sides of the discussion.
If you do it in the proposal phase, there's an
opportunity to hear both sides. But the Committee
didn't do that. They made the change in the
comment stage. It has not seen public input.

Just because of that purpose alone, we
should follow our own process and we should approve

this motion. Thank you.

MR. BELL: Thank you. Microphone 3.

MR. NASBY: Jim Nasby again, speaking in favor
of this motion. It's my motion.

With regards to the conductors being under
Page 142
grade 2 inches of concrete, the statement is not correct. I have been designing fire pump equipment and controllers and involved with service and installation since 1972. I have been in many, hundreds, pump rooms and pump house. The conductors are not always under the floor. They sometimes have to snake them in. When you are doing a retrofit, you don't normally rip up the floor. You have to find another way to get it in. Most of these fire pump controllers are service entrance; and, therefore, finding a way to provide this equipment is very difficult.

I know of a case where I did consulting work on. It was a large department store in Chicago. The only reasonable way to get from the substation, which was in the store on two and a half levels, to the fire pump room was to run this 2 inches of encased conductors on the outside of the building on the alley side which would be within the lot line. If you tried to do it with this method, it would not fit in the lot line. And we did look at other alternatives such as MI cable and stuff. This was the only practical way to do it if you're going to put a fire pump in that building in a retrofit. This requirement would have the concrete hanging out over the property line and be hit by trucks.

So practicality is important. And, again,
this requirement will not increase the fire safety overall. It will make it more difficult and reduce it overall. I ask for support of this motion. Thanks.

MR. BELL: Thank you. Microphone 5.

MR. DOLLARD: Thank you, Mr. Chairman.

Jim Dollard, International Brotherhood of Electrical Workers. I would like to address a couple of statements that were made previously.

This had abundant public review. There were multiple proposals that dealt with the two-hour issue. Multiple proposals and comments that dealt with the concrete issue. If this were, in fact, new no material, I could tell you as a member of the Correlating Committee, we would have flagged it and it would have been held until the next Cycle. It is not new material.

What we're talking about here is, does 2 inches of concrete in every possible scenario get you a two-hour fire rating? The answer to that is a resounding no. Now we recognize it on grade it's going to be completely different. So we left 2 inches on grade. But if you go up a column or if you're in a deck and you just got 2 inches and you get a fire in that space, 2 inches of concrete does not equal two-hour fire rating. That's what this is about.

This is the same exact issue as the previous CAM that we just dealt with, and I urge...
you to oppose the motion on the floor. Thank you, 
Mr. Chairman.

MR. BELL: Thank you. Microphone 2.

MR. MILKE: I am Jim Milke, Professor and Chair
of the Department of Fire Protection Engineering at
the University of Maryland, and I'm speaking in
favor of this motion.

I sat on my hands through the previous
motion and probably should have stood up at the
time. The reference -- I should add that I am Past

Chairman of the ASCE SFP Committee on Structural
Fire Protection that put the tables together that
you're referencing that are now in the IBC.

The reference that you're providing in the
case of a slab on a ground is a completely
different application than a free-standing wall or
floor/ceiling slab for which that 2- or 4-inch
requirement would come from that you're
referencing. It's a little different heat transfer
problem when I got 2 inches of concrete and a few
thousands miles of soil underneath it that go to
the Asian continent, all right. A very different
heat transfer problem.

It's a complete and total misapplication
of that table to talk about 2 inches of concrete
and what does that give in the way of fire
resistance, that you can't apply that table. Thank
you.
HIRSCHLER: Marcelo Hirschler, GBH International, speaking for NAFRA and speaking against the motion.

I want to address the issue that this was brought up at the comment stage. It was not. Let me -- the motion is to accept Comment 13-54. If you look at the NEC report on comment, Page 70-384, Comment 13-54 says, "Do not remove the option of 2 inches on concrete. Do not delete said text." And this is comment on Proposal 13-68. You go to the NEC Report on Proposals, Page 779, and you see that in there, it has deleted the words "Be encased in a minimum of 2 inches of concrete."

This is not new material that was introduced at the comment stage. This was done at the proposal stage. I urge the Committee to -- the assembly to be consistent with what you did in the previous vote. Oppose the motion. Thank you.

MR. BELL: Thank you. Microphone 3.
MR. KOFFEL: Bill Koffel, Koffel & Associates, speaking for myself in support of the motion.

Again, the question is not whether 2 inches, 3 inches, 4 inches or 25 inches equals two hours. The question really is, do we need anything more than 2 inches of concrete? Do we need two hours? I haven't heard that question answered. You've heard the water supply for this system may not be two hours. You've heard the pump
enclosure may not require two-hour construction.

Well, I would offer the building in which this is located might not have a two-hour fire-resistance rating. It seems very excessive that we're going to require two-hour cable in a building that doesn't even have a two-hour rating.

MR. BELL: Thank you. Microphone 2.

MR. ODE: Mark Ode, Underwriters Laboratories, speaking for the motion.

One of the things that we pride ourselves on in the Electrical Code and the other codes and standards requirements are that we provide the proper substantiation. And one of the items that you want to provide when you are providing substantiation for a change, especially one as large as this one, is that you want to show where the failures are at. We haven't seen any of those.

The industry needs to have some extra time to take a look at this before we have to have 4 inches rather than 2 inches which is what we've been doing for a long time.

You know, I would urge the Association to support this motion because we need extra time to study this issue rather than spending three years putting an additional 2 inches of concrete in to
make it a 4-inch application. And again, you know, it's an issue that needs to have a lot of study to it because of all the things that we've been talking about, different heat transfers, those kinds of things.

Bill Koffel had it exactly right. We may not even have a two-hour rated building, and yet we're now going to have to have 4 inches of concrete on top of some type of raceway or wiring methods. And that's just not -- there's actually been no proof that there's a problem with this whole issue. I think it's a product issue and not simply a heat transfer or an installation issue.


MR. GUIDRY: Thank you. My name is Eddie Guidry, Fluor Corporation, representing associated builders and contractors. I move to call the question.

A VOICE: Second.

MR. BELL: Motion is to call the question. I hear a second. So we will move directly to the move. All those in favor of calling the question, press 1. All those opposed, press 2. Vote now. 5 seconds.

Voting is closed. Motion passes. So we'll move directly to the vote on the motion on the floor which is to accept Comment 13-54. Press 1 if you're in favor and 2 if
you're opposed. Vote now. 5 seconds.

Voting is closed. Motion passes.

So we'll move to Sequence 70-27 or 70-28 which are related motions. Is there a motion on the floor?

MS. THOMPSON: Mr. Chairman, I am Elaine Thompson, representing the Steel Tube Institute, and I vote to -- I move to accept Comment 13-59.

MR. BELL: The motion on the floor is to accept Comment 13-59. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MS. THOMPSON: This is the same issue that we've just been debating, but this particular section deals with 695-14(F) which is the generator control wiring methods. The other section we were talking about was the supply conductors in 695 for fire pumps.

So I won't repeat some of the comments that I have already made, but I would like to call attention to the members here that two of the most populous cities in the United States, Chicago and New York, allow the use of 2 inches of concrete encasement and will continue to do so.

Chicago, interestingly enough, did change the Chicago Electrical Code in 2000 to require more concrete. I think they must have been listening to the same type of substantiation, or lack thereof, Page 149.
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 19, 2013

AMENDMENT (70-26)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 13-54 to modify a part of Proposal 13-68

CC FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS achieved the necessary 3/4 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 [12 (eligible to vote) – 0 (ballots not returned) – 0 (abstention) = 12 × 0.75 = 9]

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CC Action: PASS

CMP 13 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS NOT achieved the necessary 2/3 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 12 [20 (eligible to vote) – 2 (ballots not returned) – 0 (abstentions) = 18 × 0.66 = 11.88]

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CMP 13 Action: FAIL
Ms. Linda Fuller  
Manager, Codes and Standards Administration  
National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02169  

Subject: Certified Amending Motions 70-26, 70-27, 70-29 & 70-31  

Dear Ms. Fuller,

I would like the opportunity to speak at the Standards Council meeting on behalf of action taken on CAM 70-26, 70-27, 70-29 & 70-31. This motions should have been withdrawn after CAM 70-23 and 70-24 were defeated at the June 13, 2013 Technical Session. The CAM’s referenced above all address the same issue, 2 inches of concrete vs 4 inches of concrete. Although, these CAM’s affected different sections the issues was the same, 2 inches of concrete. This is apparent by looking at the comments that address this issue. The negative comments for 13-47, 13-49, 13-54, 13-59, 13-62, 13-76, 13-86, 13-101, 13,102, 13-104 & 13-105 all refer back to either 13-46 or 13-72.

Additionally, comment 13-75a made other changes than the concrete issue and none of these changes were discussed by the submitters or the CAM but the action taken at the Technical Session could undo the committees work.

Sincerely,

James Conrad
Log #558 NEC-P13
(695.6(A)(2)(d)(1))

Submitter: Richard E. Loyd, Sun Lakes, AZ
Comment on Proposal No: 13-68
Recommendation: Reconsider and retain (1) be encased in 50mm (2 inches) of concrete.
Substantiation: I agree with Degnan and Ode’s comments on their negative voting.

This requirement has been in the code continuously since Article 695 first appeared in the NEC. The submitter is in error as the 2 hour fire rating being discussed was never a condition for using 695.6(A)(2)(d)(1). The committee’s substantiation is also in error in comparing the 2 inches of concrete with a 2 hr fire rating.

There has been no substantiation to remove this useful condition of use, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:
(d) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:

(1) Be encased in a minimum of 50 mm (2 in.) of concrete
(2) Be installed under not less than 50 mm (2 in.) of concrete on grade
(3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)
(4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception to (A)(2)(d): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Statement: The committee acknowledges that 2 in. of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 in. of concrete concept that was submitted during the 2011 cycle.

Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:

DEGNAN, J.: The submitter commented in support of retaining the 2” of concrete that is in the 2011 code, the panel’s action to double the distance is not accepting the principle of the submitter’s proposal, it is completely changing the submitter’s intent.

While temperature performance issues have been identified with 2” of concrete, it is not clear that they will be resolved with 4” concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2” of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4” of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each
application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel’s assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.
13-47     Log #956  NEC-P13
(695.6(A)(2)(d)(1))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No:  13-67
Recommendation: Reject the proposal and retain the text in the 2011 NEC.
Substantiation: This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 mc Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2012 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on comment 13-46.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18  Negative: 3
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-49   Log #1211  NEC-P13
(695.6(A)(2)(d)(1))

Final Action: Reject

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-67
Recommendation:  Reject this proposal.
Substantiation: I agree with the negative vote comments by M. Ode. Also, the 2" concrete requirement appears over a
dozen times in NFPA-70 and has been as such for many editions. No problem or difficulty was offered for changing this
requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more
concrete for a 3-1/2" conduit installation; plus twice the floor area. This would be even more horrendous on retrofit
installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours,
this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed
wiring systems.
Panel Meeting Action:  Reject
Panel Statement:  See the panel action and statement on Comment 13-46.
Number Eligible to Vote:  21
Ballot Results:  Affirmative: 18  Negative: 3
Explanation of Negative:
  DEGNAN, J.:  See my statement on comment 13-46.
13-54 Log #1213 NEC-P13
(695.6(B))

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-68
Recommendation: Do not remove the option of 2 in. of concrete. Do not delete said text.
Substantiation: I agree with the negative vote comment by J. Degnan. Further, also, 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many additions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2 conduit installation: plus twice the floor area. This would be even more horrendous on retrofit installations. While I didn't agree with increasing the requirements for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Accept in Principle
Panel Statement: See the panel action and statement on comment 13-46. CMP 13 does not agree with the submitter's substantiation.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 19 Negative: 2
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-59 Log #958  NEC-P13 (695.14(F)) Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-85
Recommendation:  Reject the proposal and retain 2011 NEC text.
Substantiation:  This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states in his similar proposal to 13-67 that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL fire Resistive Directory.

Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action:  Reject
Panel Statement:  See 13-58a (Log #CC1302).
Number Eligible to Vote:  21
Ballot Results:  Affirmative: 18  Negative: 3
Explanation of Negative:
DEGNAN, J.:  See my statement on comment 13-46.
13-62 Log #959 NEC-P13
(695.14(F)(1))
Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-86
Recommendation: Reject this proposal and retain the text in 2011 NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equal to 2 hr. fire protection. In fact, the 2012 NEC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject
Panel Statement: See 13-58a (Log #CC1302).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 19 Negative: 2
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.

There were no incidents cited or problems identified that justify the removal of this requirement. The 2 in of concrete is a long-standing requirement that has a history and proven track record of providing adequate fire protection for conductors.

The added requirement that concrete or other material be listed to achieve a minimum fire rating is impractical for concrete. UL does not test concrete alone for a fire rating and such a program would be difficult if not impossible to develop based on the variables involved in preparation, finishing, curing, treating, etc.

The proponents of this proposal have argued that 2 in. of concrete does not equate to 2 hours of fire protection on the basis that the 2 in. concrete requirement was in the NFPA 20 Fire Pump Standard when the required fire rating for conductors was 1 hour, and the 2 in. concrete requirement was left unchanged when the fire rating for conductors was increased to 2 hours. The 2 in. of concrete has never been claimed to provide a specific time-sensitive fire rating or been considered to equate to a specific fire rating. It is an alternative method of protection for conductors and its removal from the NEC will cause a hardship in that it will force installers to use protection methods that may not be superior to 2 in. of concrete.

DEGNAN, J.: While temperature performance issues have been identified with 2" of concrete, it is not clear that they will be resolved with 4" concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.


Revise the action on Proposal 13-101 as follows:

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system
   (2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
       Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper
       installation requirements to maintain the fire rating.
   (3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating
   (4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency
       wiring circuits.
   (5) Be encased in a minimum 50 mm (2 in.) of concrete

The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating
for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was
submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable. The recommendation
includes the action taken on Proposal 13-109 for clarity.

Substantiation: The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating
for years in this section of the Code and no substantiation has been provided to show there is a problem with its use.
Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building Code does allow control
and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The
NEC has long allowed the use of 2" concrete as a viable alternative to other methods allowed and the 2011 NFPA
Handbook describes the difference between the allowable methods in 695.6(A)(2)d), not necessarily their equivalency.

<table>
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<tr>
<td>13-76</td>
<td>#960</td>
<td>NEC-P13</td>
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<td>(700.10(D)(1))</td>
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**Submitter:** William A. Wolfe, Steel Tube Institute  
**Comment on Proposal No:** 13-109  
**Recommendation:** Reject this proposal and retain text from 20 II NEC.  
**Substantiation:** This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - and equivalent of - the other two methods allowed in 695.6(A)(2) and a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

**Panel Meeting Action:** Reject  
**Panel Statement:** Proposal 13-109 does not modify 700.10(D)(1)(5). See 13-75a (Log #CC1303).  
**Number Eligible to Vote:** 21  
**Ballot Results:** Affirmative: 18 Negative: 3  
**Explanation of Negative:**  
13-86  Log #1215  NEC-P13  
(700.100(D)(1)(5))  

Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL  
Comment on Proposal No: 13-128  
Recommendation:  Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.  
Substantiation:  2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.  
Panel Meeting Action:  Accept in Principle  
Panel Statement:  See the action on 13-75a (Log #CC1303).  CMP 13 does not agree with the submitter's substantiation.

Number Eligible to Vote:  21  
Ballot Results:  Affirmative: 18  Negative: 3  
Explanation of Negative:  
Reject this proposal and retain the text in 2011 NEC. This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the panel action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-102 Log #962 NEC-P13
(708.10(C))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-168
Recommendation: Reject this proposal and retain the text in 2011 NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-104 Log #1216 NEC-P13 (708.10(C)(2)) Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL

Comment on Proposal No: 13-167

Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.

Substantiation: 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Accept in Principle

Panel Statement: See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter's substantiation.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:

13-105 Log #1217 NEC-P13
(708.10(C)(2)(3)) Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-168
Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.
Substantiation: 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Accept in Principle
Panel Statement: See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter’s substantiation.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
## Floor Action on Certified Amending Motions
Documents for the June 2013 Association Technical Meeting

**Document #7  Panel 13  NFPA 70, National Electric Code®  A2013**

<table>
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<th>Motion Seq #</th>
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<th>Time</th>
<th>Section/Para</th>
<th>Person(s) Authorized to Make the Motion</th>
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ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-27)

Document: NFPA 70, *National Electrical Code*

Motion: To Accept Comment 13-59 and thereby Reject Proposal 13-85

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS/HAS NOT** achieved the necessary $3/4$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is $\[12 \text{ (eligible to vote)} - \_\_ \text{ (ballot not returned)} - \_\_ \text{ (abstention)} = \_\_ \times 0.75 = \_\_\]$ 

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CC Action: PASS/FAIL

CMP 13 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary $2/3$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is **12** $[20 \text{ (eligible to vote)} - 2 \text{ (ballots not returned)} - 0 \text{ (abstentions)} = 18 \times 0.66 = 11.88]$ 

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CMP Action: FAIL
NFP A 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-27

Amendment: Accept Comment 13-59 and thereby Reject Proposal 13-89

NOTE: This Association Amendment (“Amendment”) is being submitted for a ballot by the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects (“Reg.”). Under the Reg., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 95.14(f) be returned to previous edition text. In this case, the result is:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods;
(1) Be encased in a minimum of 30 mm (2 in.) of concrete,
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits;
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL guide information for electrical circuit protective systems (ECP) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally refers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

I agree with the guidance given by the CoP to reject Comment 13-89

Signature:  

Name - Please Print:  

Date: _6-19-13_

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kehea@nfpa.org

July 22, 2013 Supp lemental Agenda July 29-August 1, 2013 Page 678 of 1861
Amendment: Accept Comment 13-59 and thereby Reject Proposal 13-85

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs."). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.14(F) be returned to previous edition text. In this case, the result is:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:

(1) Be encased in a minimum of 50 mm (2 in.) of concrete.
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits.
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

A thickness of 2 in. of concrete does not achieve a minimum 2 hour fire rating. This issue should be addressed with Public or Committee Input during the next revision cycle to the NEC.

Signature: [Signature]

Name - Please Print: James L. Brown

Date: 6/18/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shao, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-598-7056
EMAIL: kshao@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-27


NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.14(F) be returned to previous edition text. In this case, the result is:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:

1. Be encased in a minimum of 50 mm (2 in.) of concrete.
2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits.
3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

[Reasons listed]

Signature: [Signature]

Name - Please Print: [Name]

Date: [Date]

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Sica, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kehen@nfpa.org
Amendment: Accept Comment 13-59 and thereby Reject Proposal 13-85

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.14(F) be returned to previous edition text. In this case, the result is:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:
1. Be encased in a minimum of 50 mm (2 in.) of concrete.
2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits.
3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL guide information for electrical circuit protective systems (FHT) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☑ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

Items 2&3 insure that the conductors are protected by a 2 hr fire rating. The implication of #1 is that is also the equivalent of a 2 hour fire rating. It is not, refer to ACI 216.1-97 Table 2.1. It would require depending upon concrete type between 3.6“-5.0” to provide a 2 hour protection.

________________________
Signature: __________________________

Name - Please Print: Richard D. Currin Jr.

Date: 7/2/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
Amendment: Accept Comment 13-59 and thereby Reject Proposal 13-85

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.14(F) be returned to previous edition text. In this case, the result is:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:
1. Be encased in a minimum of 30 mm (2 in.) of concrete.
2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits.
3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL grade information for electrical circuit protective systems (FHT) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

Comp 13 has already debated this issue in length

Signature:

Name - Please Print: Steve Free damning

Date: 6/25/13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 AMENDMENT 70-27

Amendment: Accept Comment 13-59 and thereby Reject Proposal 13-85

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Rega"). Under the Rega, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Rega, at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.14(F) be returned to previous edition text. In this case, the result is:

(P) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:
(1) Be encased in a minimum of 50 mm (2 in.) of concrete.
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits.
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL guide information for electrical circuit protective systems (PHIT) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Rega, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree
☒ Do Not Agree*
☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

The American Concrete Institute and American Society for Civil Engineers agree through testing and through existing building code that 2 inches of concrete will not provide a 2-hour fire resistance rating. If the committee desires to have conductors survive for two hours in an emergency situation, then the present 2-hour requirement is not adequate and must change.

Signature: [Signature]

Name - Please Print: [Name]

Date: [Date]

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shen, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshen@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-27

Amendment: Accept Comment 13-59 and thereby Reject Proposal 13-85

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 695.14(F) be returned to previous edition text. In this case, the result is:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:
(1) Be encased in a minimum of 50 mm (2 in.) of concrete.
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits.
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL guide information for electrical circuit protective systems (FPICT) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs. that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

This issue was thoroughly debated over the last two NEC cycles. The existing reference to "2 inches" is based on the physical protection requirements in 230.6 for service conductors. Substantiation provided for this revision included NFPA and ICC references that clearly illustrated that "2 inches" of concrete was inadequate.

The Correlating Committee and Standards Council should develop a task group to address this issue before the next NEC cycle.

Signature: Linda J. Little

Name - Please Print: Linda Little

Date: 6/26/13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-27

Amendment: Accept Comment 13-59 and thereby Reject Proposal 13-85

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("RegS"). Under the Regs., if an Amendment falls the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment the subject of this ballot recommends 695.14(F) be returned to previous edition text. In this case, the result is:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:
(1) Be encased in a minimum of 50 mm (2 in.) of concrete.
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits.
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used. Informational Note: UL guide information for electrical circuit protective systems (FHT) contains information on proper installation requirements to maintain the fire rating.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☐ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

This topic was debated during this and the previous cycle with supporting material from NFPA and ICC which substantiate 2 inches of concrete is not sufficient.

Signature: __________________________

Name - Please Print: Dan Neeser

Date: July 25, 2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
FAX: 617-984-7056
EMAIL: kshea@nfpa.org
From: Jim White [vettn71@aol.com]  
Sent: Tuesday, June 25, 2013 6:23 PM  
To: Shea, Kimberly  
Subject: CMP13 Ballots  

Kimberly  

I am in Savannah at the NFPA 70E committee meetings until Monday. Please accept this email as my ballot until I can scan and send the actual ballot forms  

I do not agree with the proposed changes. There was considerable discussion and evidence concerning the need for thicker concrete above grade. It was discussed at the CMP13 meeting about the possibility of a task group to investigate this more thoroughly. I still believe this is needed  

Best Regards  

Jim  

Although Jim is a member of the NFPA Technical Committee for NFPA 70E "Standard for Electrical Safety in the Workplace", NFPA 70E "Recommended Practice for Electrical Equipment Maintenance", NFPA NEC Code Making Panel 13 and is on the ASTM F-18 Committee "Electrical Protective Equipment for Workers" the views and opinions expressed in this message are purely the authors and shall not be considered an official position of NFPA, ASTM or any of their technical committees and shall not be considered to be, nor be relied upon as a formal interpretation or promotion of NFPA or ASTM.
**ACCEPT Comment 13-59**

13-59 Log #958 NEC-P13 (695.14(F))

**Final Action:** Reject

**Submitter:** William A. Wolfe, Steel Tube Institute

**Comment on Proposal No:** 13-85

**Recommendation:** Reject the proposal and retain 2011 NEC text.

**Substantiation:** This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states in his similar proposal to 13-67 that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equvallent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.206.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a “listed” concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in between the fire (3) trip power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods: (1) Be encased in a minimum 50 mm (2 in.) of concrete. (2) Be installed under not less than 50 mm (2 in.) of concrete on grade. (3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits. (4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used.

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

**Panel Meeting Action:** Reject

**Panel Statement:** See 13-58a (Log #CC1302).

**Number Eligible to Vote:** 21

**Ballot Results:** Affirmative: 18 Negative: 3

**Explanation of Negative:**

DEGNAN, J.: See my statement on comment 13-46.


**Backup Proposal 13-85**

13-85 Log #11 NEC-P13 (695.14(F))

**Final Action:** Accept in Principle

**Note:** This Proposal appeared as Comment 13-114 (Log #11643) which was held from the A2010 ROC on Proposal 13-131. The Recommendation on Proposal 13-131 was: Revise text to read as follows: 695.14(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods: (1) Be encased in a minimum 50 mm (2 in.) of concrete. (2) Be installed under not less than 50 mm (2 in.) of concrete on grade. (3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits. (4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used.

**FPN:** UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

**Submitter:** Technical Correlating Committee on National Electrical Code®,

**Recommendation:** The Technical Correlating Committee directs that this comment be reported as “Hold” as it introduces new material and is not in accordance with 4.6.4.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equated to a 2 hour fire-rating has not had public review.

**Substantiation:** This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

**Panel Meeting Action:** Accept in Principle

Revise 695.14(F) to read as follows:

(1) Be protected by a fire-rated assembly, consisting of gyspum wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

(2) To renumber as (2).

**Informational Note:** changed.

**Referenced Comment 13-58a and 13-46**

13-58a Log #CC1302 NEC-P13 Final Action: Accept (695.14(F))

**Submitter:** Code-Making Panel 13,

**Comment on Proposal No:** 13-85

**Recommendation:** Revise the action on Proposal 13-85 as follows:

(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods: (1) Be encased in a minimum 50 mm (2 in.) of concrete. (2) Be installed under not less than 50 mm (2 in.) of concrete on grade. (3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuits. (4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used.

**Informational Note:** UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

**Substantiation:** The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable.

**Panel Meeting Action:** Accept

**Number Eligible to Vote:** 21

**Ballot Results:** Affirmative: 17 Negative: 4

**Explanation of Negative:**

CZARNECKI, N.: The allowance for 2” concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no other substantiation has been submitted to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.206.1 of the International Building code does allow control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2” concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)(d), not necessarily their equivalency.

DEGNAN, J.: See my statement on comment 13-46.

ODE, M.: I agree with the negative votes of Mr. Degnan, Mr. Spina, and Mr. Czarnecki. See my statement on Comment 13-46.


13-46 Log #558 NEC-P13 (695.6(A)(2)(d)(1))

**Final Action:** Accept in Principle

**Submitter:** Richard E. Loyd, Sun Lakes, AZ

**Comment on Proposal No:** 13-68

**Recommendation:** Reconsider and retain (1) be encased in 50mm (2 inches) of concrete.

**Substantiation:** I agree with Degnan and Ode’s comments on their negative voting.

This requirement has been in the code continuously since Article 695 first appeared in the NEC. The submitter is in error as the 2 hour fire rating being discussed was never a condition for using 695.6(A)(2)(d)(1). The committee’s substantiation is also in error in comparing the 2 inches of concrete with a 2 hr fire rating.

There has been no substantiation to remove this useful condition of use, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

**Panel Meeting Action:** Accept in Principle

Revise text to read as follows:

(1) Be enclosed in a minimum 50 mm (2 in.) of concrete.

(2) Be installed under not less than 50 mm (2 in.) of concrete on grade.
Protection Handbooks that 2 inches of concrete encasement is not sufficient for
Submitter:
________________________________________________________________
Panel Meeting Action: Accept in Principle
Panel Meeting Action: Reject
Panel Statement: In the beginning sentence in the proposed text, the phrase
“ALL wiring installed between fire pump controllers required to either start or stop a fire pump” does not state the condition in which there are multiple fire pump controllers that would require interconnection conductors. The submitter must insert more specific text on multiple controllers and an informational note providing an explanation of the reasoning for the interconnection wiring between multiple fire pump controllers.
Number Eligible to Vote: 18
Ballot Results: Affirmative: 18

Referenced Proposal 13-67

The fire protection requirement for critical circuits in

Add new Clause:

Annual Revision Cycle.

Substantiation: The fire protection requirement for critical circuits in

Final Action: Accept in Principle
Panel Meeting Action: Accept in Principle
Panel Meeting Action: Accept in Principle
Panel Statement: See action and statement on Proposal 13-68.
Ballot Results: Affirmative: 17 Negative: 1
Explanation of Negative:
ODE, M.: The Proposal did not provide any technical substantiation for
the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. UL does not list concrete by itself for a fire rating so any UL fire rated assembly would involve a complete assembly of building materials, often including concrete and other materials. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables that affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel’s assertion that conductors installed in conduits under a slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.

Related Proposals 13-86 and 13-87

13-86 Log #1119 NEC-P13 Final Action: Accept in Principle
Submitter: Thomas Guida, TJG Services, Inc.
Recommendation: Accept the panel action on ROC 13-114 from the 2010 Annual Revision Cycle.
Substantiation: The fire protection requirement for critical circuits in Article 685 is 2-hr. Although 2 inches of concrete was used to meet a 1-hr fire protection requirement, it is well documented in the IBC and NFPA Fire Protection Handbooks that 2 inches of concrete encasement is not sufficient for 2-hr fire protection. The panel action provided a prescriptive value (4 inches) of concrete that allows for objective enforcement.
Panel Meeting Action: Accept in Principle
Number Eligible to Vote: 18
Ballot Results: Affirmative: 17 Negative: 1
July 22, 2013
Supplemental Agenda July 29-August 1, 2013 Page 688 of 1861
The concept of 4 inches of concrete equated to a 2 hour fire-rating has not had public review.

Substantiation: This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept in Principle

Revise 695.6(A)(2)(d) to read as follows:
(1) Be encased in a minimum 50mm (2 in.) of concrete.
(1) Be protected by a fire-rated assembly, consisting of gypsum wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).
(3) to renumber as (2).

Informational Note is unchanged.

Panel Statement: CMP-13 agrees with the submitter that there is no evidence that 2 in. of concrete will attain a 2-hr fire rating. The language is consistent with language throughout the NFPA standards pertaining to construction requirements.

Number Eligible to Vote: 18
Ballot Results: Affirmative: 16 Negative: 2
Explanation of Negative:
DEGNAN, J.: While test data shows that 2” of concrete fails to protect when subjected to a fire for 2 hours, fire isn’t the only consideration. In some egress scenarios, concrete encasement may offer physical protection that would prove more valuable than a system only designed for 2 hours fire.
13-59 Log #958 NEC-P13 (695.14(F)) Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute

Comment on Proposal No: 13-85

Recommendation: Reject the proposal and retain 2011 NEC text.

Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states in his similar proposal to 13-67 that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to a 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a “listed” concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.14(F) the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject

Panel Statement: See 13-58a (Log #CC1302).

Number Eligible to Vote: 21

Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:

DEGNAN, J.: See my statement on comment 13-46.

Backup Proposal 13-85

13-85 Log #11 NEC-P13 (695.14(F)) Final Action: Accept in Principle

Note: This Proposal appeared as Comment 13-114 (Log #11643) which was held from the A2010 ROC on Proposal 13-131. The Recommendation on Proposal 13-131 was: Revise text to read as follows: 695.14(F) Generator Control Wiring Methods. Control conductors installed between the fire pump power transfer switch and the standby generator supplying the fire pump during normal power loss shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) using one of the following methods:

1) Be encased in 50 mm (2 in.) of concrete. Sufficient substantiation for removing this long-held option was not provided. The submitter states in his similar proposal to 13-67 that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to a 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a “listed” concrete assembly.

2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and/or within enclosed construction dedicated to the fire pump circuits and having a minimum 1-hour fire-resistance rating. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used.

FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Submitter: Technical Correlating Committee on National Electrical Code®

Recommendation: The Technical Correlating Committee directs that this comment be reported as “Hold” as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equated to a 2 hour fire-rating has not had public review.

Substantiation: This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept in Principle

Revise 695.14(F) to read as follows: (ii) Be encased in a minimum 50 mm (2 in.) of concrete. (1) Be protected by a fire-rated assembly, consisting of gypsum wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

(3) to renumber as (2).

Informational Note is unchanged.

13-46 Log #558 NEC-P13 (695.6(A)(2)(d)(1)) Final Action: Accept in Principle

Submitter: Richard E. Loyd, Sun Lakes, AZ

Comment on Proposal No: 13-68

Recommendation: Reconsider and retain (1) be encased in 50mm (2 inches) of concrete.

Substantiation: I agree with Degnan and Ode’s comments on their negative voting.

This requirement has been in the code continuously since Article 695 first appeared in the NEC. The submitter is in error as the 2 hour fire rating being discussed was never a condition for using 695.6(A)(2)(d)(1). The committee’s substantiation is also in error in comparing the 2 inches of concrete with a 2 hr fire rating.

There has been no substantiation to remove this useful condition of use, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(i) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:

(1) Be encased in a minimum 50 mm (2 in.) of concrete.

(2) Be installed under not less than 50 mm (2 in.) of concrete on grade.
Ballot Results:
Affirmative: 17 Negative: 1
Panel Statement:
Panel Meeting Action: Accept in Principle
Protection Handbooks that 2 inches of concrete encasement is not sufficient for fire protection requirement, it is well documented in the IBC and NFPA Fire Annual Revision Cycle.

(695.14(F)(1))

While temperature performance issues have been identified with 2" of concrete, it is not clear that they will be resolved with 4" of concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, and reinforced concrete has a different ratio than pre-stressed concrete.

The submitter could have provided a Fact Finding Study on the different types of concrete that could be used to meet a 1-hour fire rating. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel’s assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.

Related Proposals 13-67 and 13-87

13-67 Log #1118 NEC-P13 Final Action: Accept in Principle

Submitter: Thomas Guida, TJG Services, Inc.
Recommendation: Accept the panel action on ROC 13-102 from the 2010 Annual Revision Cycle
Substantiation: The fire protection requirement for critical circuits in risers is a 2-hour fire protection requirement, it is well documented in the IBC and NFPA Fire Protection Handbooks that 2 inches of concrete encasement is not sufficient for 2-hour fire protection. The panel action provided a prescriptive value (4 inches) of concrete that allows for objective enforcement.

13-86 Log #1119 NEC-P13 Final Action: Accept in Principle

Submitter: Thomas Guida, TJG Services, Inc.
Recommendation: Accept the panel action on ROC 13-114 from the 2010 Annual Revision Cycle
Substantiation: The fire protection requirement for critical circuits in Art. 695 is 2-hr. Although 2 inches of concrete was used to meet a 1-hr fire protection requirement, it is well documented in the IBC and NFPA Fire Protection Handbooks that 2 inches of concrete encasement is not sufficient for 2-hour fire protection. The panel action provided a prescriptive value (4 inches) of concrete that allows for objective enforcement.

Panel Meeting Action: Accept in Principle

Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3

Examination of Negative:
ODE, M.: See the Negative Statement in Proposal 13-49

13-87 Log #114 NEC-P13 Final Action: Reject

Submitter: James S. Nasby, Columbia Engineering
Recommendation: Add new text to read as follows:
Add new Clause: 695.14(G) Controller Interconnect Wiring. All wiring between fire pump controllers required to either start or stop a fire pump shall be kept entirely independent of all other wiring. They shall be protected to resist potential damage by fire or structural failure. They shall be permitted to be routed through a building(s) encased in 50 mm (2 in.) of concrete or within an enclosure constructed dedicated to the fire pump circuits and having a minimum 1-hour fire resistance rating, or circuit protective systems with a minimum of 1-hour fire resistance. The installation shall comply with any restrictions provided in the listing of the electrical circuit protective system used.

Substantiation: This matches the requirements of 695.14(F); however, this controller interconnect wiring is more critical since it usually in the “critical starting path” of one or more pumps. One example is pumps in series where upper zone pumps must signal lower zone pumps to start in order to supply the needed water and prevent pump cavitation. This is most critical in high rise buildings (where the upper zone(s) are “protected in place” by fire department pumping capability), and especially where people sleep.

Panel Meeting Action: Reject
Panel Statement: In the beginning sentence in the proposed text, the phrase “All wiring installed between fire pump controllers required to either start or stop a fire pump” does not state the condition in which there are multiple fire pump controllers that would require interconnection conductors. The submitter must insert more specific text on multiple controllers and an informational note providing an explanation of the reasoning for the interconnection wiring between multiple fire pump controllers.

Number Eligible to Vote: 18
Ballot Results: Affirmative: 18

Referenced Proposal 13-67

Model Code References

(695.14(F)(1))

Ordinal: 15 of 21
The concept of 4 inches of concrete equated to a 2 hour fire-rating has not had public review.

Substantiation: This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept in Principle

Revise 695.6(A)(2)(d) to read as follows:

(1) Be encased in a minimum 50mm (2 in.) of concrete.

(2) Be protected by a fire-rated assembly, consisting of gypsum wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

(3) to renumber as (2).

Informational Note is unchanged.

Panel Statement: CMP-13 agrees with the submitter that there is no evidence that 2 in. of concrete will attain a 2-hr fire rating. The language is consistent with language throughout the NFPA standards pertaining to construction requirements.

Number Eligible to Vote: 18

Ballot Results: Affirmative: 16 Negative: 2

Explanation of Negative:

DEGNAN, J.: While test data shows that 2” of concrete fails to protect when subjected to a fire for 2 hours, fire isn’t the only consideration. In some egress scenarios, concrete encasement may offer physical protection that would prove more valuable than a system only designed for 2 hours fire.

you're opposed. Vote now. 5 seconds.

Voting is closed. Motion passes.

So we'll move to Sequence 70-27 or 70-28, which are related motions. Is there a motion on the floor?

MS. THOMPSON: Mr. Chairman, I am Elaine Thompson, representing the Steel Tube Institute, and I vote to -- I move to accept Comment 13-59.

MR. BELL: The motion on the floor is to accept Comment 13-59. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MS. THOMPSON: This is the same issue that we've just been debating, but this particular section deals with 695-14(F) which is the generator control wiring methods. The other section we were talking about was the supply conductors in 695 for fire pumps.

So I won't repeat some of the comments that I have already made, but I would like to call attention to the members here that two of the most populous cities in the United States, Chicago and New York, allow the use of 2 inches of concrete encasement and will continue to do so.

Chicago, interestingly enough, did change the Chicago Electrical Code in 2000 to require more concrete. I think they must have been listening to the same type of substantiation, or lack thereof,
that we've heard today. However, one short year
later, they changed it back to 2 inches, and that's
where it remains today.

So I am a proud resident of the City of
Chicago, city of Mrs. O'Leary's cow and the Great
Chicago Fire, and I think Chicago takes its
electrical and fire protection requirements very
seriously. So I urge you to accept this motion.

MR. BELL: Thank you. Mr. Johnston?

MR. JOHNSTON: Thank you, Mr. Chair. Once
again, I would like to defer to Interim Chair of
NEC Code Panel 13 Mr. John Kovacik, please.

MR. KOVACIK: Thank you, Michael.

John Kovacik, Underwriters Laboratories, serving as
Interim Chair of Panel 13 and speaking on behalf of
Panel 13 against the motion on the floor.

I have nothing new to add. It's the same
issue. It's only a different section of
Article 695, but I don't think that changes
anything as far as the position of the panel, and I
urge you to vote against the motion. Thank you.

MR. BELL: Thank you. Microphone Number 3.

MR. NASBY: Jim Nasby, again speaking in favor
of this motion.

I wanted to indicate that the UL action to
temporarily de-list circuit protection systems is
all the systems that are in UL 21-96.

The other thing I wanted to mention is I
believe that the other city that did try to use 4 inches of concrete and changed back to 2 inches for this exact purpose was New York City. This speaks to how impractical the 4 inches are. If it would have been practical, they certainly would have left it. Because it sounds like a good idea, but, again, it works against you when you're trying to put these things in.

The other thing is this is talking about the genset wiring. And the equipment I design is designed to provide reliable and high quality fire protection and is proven to do that. But, again, as Ken mentioned, you may not have one hour worth of water. You might only have a half hour. You might only have one hour worth of fuel in that genset that we're trying to start. Thank you. Again, I ask the membership to support this motion.


MR. CONRAD: Thank you. Jen Conrad, RSCC Wire & Cable and member of CMP 13. A lot of this information --

MR. BELL: Speaking for or against?

MR. CONRAD: Speaking against the motion on the floor. Thank you.

Ladies and gentlemen, there's a lot of misinformation flying around. I can understand reversing it for fire pumps because there was a good statement made. 695 covers fire pumps for all buildings right now, no matter if it's a warehouse
or a high-rise building. And New York City has
played on that, and they have requirements
depending on the height of the building.

So in CMP 13, we're going to have to look
at this a little bit closer. However, Article 700,
that is emergency systems; and when you look in

700, we're only talking about high-rise buildings
now.

So remember, we only require fire-rated
cables for people to get out of the buildings. We
need to supply emergency systems -- am I speaking
on the wrong one? I apologize.

A VOICE: Yes, you are.

MR. CONRAD: Then I will sit down. Thank you.

MR. BELL: Thank you very much. Microphone 3.

MR. BACLAWSKI: Thank you, Mr. Chairman.

Vince Baclawski, National Electrical Manufacturers
Association, and NEMA speaks in support of the
motion. Thank you.

MR. BELL: Thank you. Microphone 5.

MR. HIRSCHLER: Marcelo Hirschler,
GBH International, for NAFRA, and speaking against
the motion.

I just want to point out that the two
previous votes were both votes on the exact same
section, and we voted, first of all, to retain what
the Committee did and then to change what the
Committee did on the same section. Now we're
voting on a different section still in the area of fire pumps. So I hope that you will support the original approach not to retain the 2 inches of concrete but to add additional protection.

I just want to point out that all this information has been presented about cables. It's really not relevant to this part at all. There are the other approaches to protecting the systems which are -- with either two-hour fire-rated assembly or with a two-hour fire-rated listed circuit integrity cable. Those are the other options. That's not what we're talking about.

What we're talking about is whether we want to make the concrete consistent with that. The others are not under discussion. Please oppose the motion. Thank you.

MR. BELL: Thank you. Any further discussion?

Mr. Johnston, any additional comments?

MR. JOHNSTON: I have no additional comments.

MR. BELL: Thank you. We'll move to the motion on the floor which is to accept Comment 13-59.

Press 1 if you're in favor of the motion, and press 2 if you're opposed. Vote now. 5 seconds.

Voting is closed. Motion passes.

At this point, we're going to take a 30-minute break. It's not an official lunch break,
AMENDMENT (70-27)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 13-59 and thereby Reject Proposal 13-85

CC FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS achieved the necessary 3/4 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 \( [12 (eligible to vote) - 0 (ballots not returned) - 0 (abstention) = 12 \times 0.75 = 9] \)

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</table>

0 Yes correlation issues
12 No correlation issues
0 Abstain

CC Action: PASS

CMP 13 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS NOT achieved the necessary 2/3 majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 12 \( [20 (eligible to vote) - 2 (ballots not returned) - 0 (abstentions) = 18 \times 0.66 = 11.88] \)

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9 Agree
9 Do Not Agree (Adams, Brown, Constantine, Currin, Jr., Froemming, Keenan, Little, Neeser, White)
0 Abstain

CMP Action: FAIL
Ms. Linda Fuller  
Manager, Codes and Standards Administration  
National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02169

Subject: Certified Amending Motions 70-26, 70-27, 70-29 & 70-31

Dear Ms. Fuller,

I would like the opportunity to speak at the Standards Council meeting on behalf of action taken on CAM 70-26, 70-27, 70-29 & 70-31. This motions should have been withdrawn after CAM 70-23 and 70-24 were defeated at the June 13, 2013 Technical Session. The CAM’s referenced above all address the same issue, 2 inches of concrete vs 4 inches of concrete. Although, these CAM’s affected different sections the issues was the same, 2 inches of concrete. This is apparent by looking at the comments that address this issue. The negative comments for 13-47, 13-49, 13-54, 13-59, 13-62, 13-76, 13-86, 13-101, 13,102, 13-104 & 13-105 all refer back to either 13-46 or 13-72.

Additionally, comment 13-75a made other changes than the concrete issue and none of these changes were discussed by the submitters or the CAM but the action taken at the Technical Session could undo the committees work.

Sincerely,

James Conrad
Subcommittee Action: Accept in Principle

**Reconsider and retain (1) be encased in 50mm (2 inches) of concrete.**

This requirement has been in the code continuously since Article 695 first appeared in the NEC. The submitter is in error as the 2 hour fire rating being discussed was never a condition for using 695.6(A)(2)(d)(1). The committee's substantiation is also in error in comparing the 2 inches of concrete with a 2 hr fire rating.

There has been no substantiation to remove this useful condition of use, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

**Panel Meeting Action:** Accept in Principle

Revise text to read as follows:

(1) Be encased in a minimum 50 mm (2 in.) of concrete-
(2) Be installed under not less than 50 mm (2 in.) of concrete on grade
(3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)
(4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

*Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.*

Exception to (A)(2)(d): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

**Panel Statement:** The committee acknowledges that 2 in. of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 in. of concrete concept that was submitted during the 2011 cycle.

**Number Eligible to Vote:** 21
**Ballot Results:** Affirmative: 18 Negative: 3

**Explanation of Negative:**

DEGNAN, J.: The submitter commented in support of retaining the 2" of concrete that is in the 2011 code, the panel's action to double the distance is not accepting the principle of the submitter's proposal, it is completely changing the submitter's intent.

While temperature performance issues have been identified with 2" of concrete, it is not clear that they will be resolved with 4" concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: "Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall." Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each
application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel’s assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.
Log #956  NEC-P13
(695.6(A)(2)(d)(1))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-67
Recommendation: Reject the proposal and retain the text in the 2011 NEC.
Substantiation: This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 mc Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 20 II Handbook describes the difference between - not equivalence of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on comment 13-46.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
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<th>Log #1211 NEC-P13 (695.6(A)(2)(d)(l))</th>
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**Submitter:** James S. Nasby, Skokie, IL  
**Comment on Proposal No:** 13-67  
**Recommendation:** Reject this proposal.  
**Substantiation:** I agree with the negative vote comments by M. Ode. Also, the 2" concrete requirement appears over a dozen times in NFPA-70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2" conduit installation; plus twice the floor area. This would be even more horrendous on retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.  
**Panel Meeting Action:** Reject  
**Panel Statement:** See the panel action and statement on Comment 13-46.  
**Number Eligible to Vote:** 21  
**Ballot Results:** Affirmative: 18 Negative: 3  
**Explanation of Negative:**  
DEGNAN, J.: See my statement on comment 13-46.  
13-54  Log #1213  NEC-P13
(695.6(B))

Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL

Comment on Proposal No: 13-68

Recommendation: Do not remove the option of 2 in. of concrete. Do not delete said text.

Substantiation: I agree with the negative vote comment by J. Degnan. Further, also, 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many additions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2 conduit installation: plus twice the floor area. This would be even more horrendous on retrofit installations. While I didn't agree with increasing the requirements for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Accept in Principle

Panel Statement: See the panel action and statement on comment 13-46. CMP 13 does not agree with the submitter's substantiation.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 19  Negative: 2

Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-59 Log #958 NEC-P13
(695.14(F))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-85
Recommendation:  Reject the proposal and retain 2011 NEC text.
Substantiation:  This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states in his similar proposal to 13-67 that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a “listed” concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL fire Resistive Directory .

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

Panel Meeting Action:  Reject
Panel Statement:  See 13-58a (Log #CC1302).
Number Eligible to Vote:  21
Ballot Results:  Affirmative: 18  Negative: 3

Explanation of Negative:
DEGNAN, J.:  See my statement on comment 13-46.
13-62  Log #959  NEC-P13
(695.14(F)(1))
Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No:  13-86
Recommendation:  Reject this proposal and retain the text in 2011 NEC.
Substantiation:  This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2 hr. fire protection. In fact, the 2012 mc Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action:  Reject
Panel Statement:  See 13-58a (Log #CC1302).
Number Eligible to Vote:  21
Ballot Results:  Affirmative:  19  Negative:  2
Explanation of Negative:
DEGNAN, J.:  See my statement on comment 13-46.
13-72  Log #1473 NEC-P13 (700.9(D)(1))  Final Action: Reject

Submitter:  John R. Kovacik, UL LLC
Comment on Proposal No:  13-101
Substantiation:  There were no incidents cited or problems identified that justify the removal of this requirement. The 2 in of concrete is a long-standing requirement that has a history and proven track record of providing adequate fire protection for conductors.

The added requirement that concrete or other material be listed to achieve a minimum fire rating is impractical for concrete. UL does not test concrete alone for a fire rating and such a program would be difficult if not impossible to develop based on the variables involved in preparation, finishing, curing, treating, etc.

The proponents of this proposal have argued that 2 in. of concrete does not equate to 2 hours of fire protection on the basis that the 2 in. concrete requirement was in the NFPA 20 Fire Pump Standard when the required fire rating for conductors was 1 hour, and the 2 in. concrete requirement was left unchanged when the fire rating for conductors was increased to 2 hours. The 2 in. of concrete has never been claimed to provide a specific time-sensitive fire rating or been considered to equate to a specific fire rating. It is an alternative method of protection for conductors and its removal from the NEC will cause a hardship in that it will force installers to use protection methods that may not be superior to 2 in. of concrete.

Panel Meeting Action:  Reject
Panel Statement:  See 13-75a (Log #CC1303).
Number Eligible to Vote:  21
Ballot Results:  Affirmative: 18  Negative: 3
Explanation of Negative:
DEGNAN, J.:  While temperature performance issues have been identified with 2" of concrete, it is not clear that they will be resolved with 4" concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.
Proposal 13-101: Feeder-circuit wiring shall meet one of the following conditions:

1. Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system.
2. Be a listed electrical circuit protective system with a minimum 2-hour fire rating.
3. Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating.
4. Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.
5. Be encased in a minimum of 50 mm (2 in.) of concrete

The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable. The recommendation includes the action taken on Proposal 13-109 for clarity.

Affirmative: 17  Negative: 4

CZARNECKI, N.: The allowance for 2" concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no substantiation has been provided to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building code does allow control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2" concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)d), not necessarily their equivalency.


Log #960  NEC-P13 (700.10(D)(1))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-109
Recommendation: Reject this proposal and retain text from 20 II NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalently to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between the IBC equivalency of the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject
Panel Statement: Proposal 13-109 does not modify 700.10(D)(1)(5). See 13-75a (Log #CC1303).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-86     Log #1215  NEC-P13
(700.100(D)(1)(5))

Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-128
Recommendation:  Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.
Substantiation:  2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many
editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a
very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor
area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for
wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is
equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action:  Accept in Principle

Panel Statement:  See the action on 13-75a (Log #CC1303). CMP 13 does not agree with the submitter’s
substantiation.

Number Eligible to Vote:  21

Ballot Results:  Affirmative: 18  Negative: 3

Explanation of Negative:
Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-167
Recommendation: Reject this proposal and retain the text in 2011 NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the panel action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
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**Submitter:** William A. Wolfe, Steel Tube Institute  
**Comment on Proposal No:** 13-168  
**Recommendation:** Reject this proposal and retain the text in 2011 NEC.  
**Substantiation:** This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

**Panel Meeting Action:** Reject  
**Panel Statement:** See the action and substantiation on 13-102a (Log #CC1304).  
**Number Eligible to Vote:** 21  
**Ballot Results:** Affirmative: 18  Negative: 3  
**Explanation of Negative:**  
<table>
<thead>
<tr>
<th>Comment on Proposal No:</th>
<th>Comment Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-104 Log #1216 NEC-P13</td>
<td>2&quot; concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2&quot; conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.</td>
</tr>
<tr>
<td>13-167</td>
<td>Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.</td>
</tr>
</tbody>
</table>

**Submitter:** James S. Nasby, Skokie, IL  
**Recommendation:** Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.  
**Substantiation:** 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.  

**Panel Meeting Action:** Accept in Principle  
**Panel Statement:** See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter's substantiation.  
**Number Eligible to Vote:** 21  
**Ballot Results:** Affirmative: 18 Negative: 3  
**Explanation of Negative:**  
13-105   Log #1217  NEC-P13  
(708.10(C)(2)(3))  

Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL  
Comment on Proposal No: 13-168  
Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.  
Substantiation: 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.  
Panel Meeting Action: Accept in Principle  
Panel Statement:  See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter's substantiation.  
Number Eligible to Vote: 21  
Ballot Results:  Affirmative: 18  Negative: 3  
Explanation of Negative:  
### Floor Action on Certified Amending Motions
Documents for the June 2013 Association Technical Meeting

<table>
<thead>
<tr>
<th>Motion Seq #</th>
<th>NITMAM Log #</th>
<th>Time</th>
<th>Section/Para</th>
<th>Person(s) Authorized to Make the Motion</th>
<th>Certified Amending Motion**</th>
<th>Floor Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-27</td>
<td>1167</td>
<td>695.14(F)</td>
<td>Elaine Thompson &amp; Richard Loyd, Steel Tube Institute of North America †E. Thompson &amp; R. Loyd are the Desig. Reps for W. Wolfe</td>
<td>Accept Comment 13-59</td>
<td>PASSED 120-100</td>
<td></td>
</tr>
</tbody>
</table>
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-29)

Document: NFPA 70, National Electrical Code

Motion: To Accept Comment 13-76

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS/HAS NOT** achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is \( 12 - \text{not returned} - \text{abstention} = \text{needed votes} \times 0.75 = \text{result} \)

<table>
<thead>
<tr>
<th>Eligible to Vote</th>
<th>Not Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

__ Approve
__ Do Not Approve
__ Abstain

CC Action: PASS/FAIL

CMP 13 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is **12** [20 (eligible to vote) – 2 (ballots not returned) – 0 (abstentions) = \( 18 \times 0.66 = 11.88 \)]

<table>
<thead>
<tr>
<th>Eligible to Vote</th>
<th>Not Returned</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>2 (Spina, Tobias, Jr.)</td>
</tr>
</tbody>
</table>

9 Agree (With comment Caron, Degnan)
9 Do Not Agree (Adams, Brown, Constantine, Currin, Jr., Froemming, Keenan, Little, Neeser, White)
0 Abstain

CMP Action: FAIL
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-29

Amendment: Accept Comment 13-26

NOTE: This Amendment ("Amendment") is being submitted for a ballot by the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(5). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text, for 700.10(D) which reads as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in assembly occupancies for not less than 1000 persons in buildings over 23 m (75 ft) in height or any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 702: 2009, Safety Code.

(1) Fusible Circuit Wiring. Fusible circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system.
   (2) Be a listed electrical system protective system with a minimum 3-hour fire rating.

Informational Note: UL guide information for electrical systems protective systems (EHT) contains information on proper installation requirements to maintain the fire rating.

(2) Be protected by a listed-thin barrier system for electrical system components with a minimum 2-hour fire rating.

(4) Be protected by a listed high-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuit.

(3) Be encased in a minimum of 50 mm (2 in.) of concrete.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

I agree with the substantiation given by the CPD to reject comment 13-26.

Signature:  [Signature]

Name - Please Print:  [Name]

Date:  6-19-13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kimberly Shea
FAX: 617-984-7056
EMAIL: kshea@nfpa.org

July 22, 2013  Supplemental Agenda July 29-August 1, 2013  Page 717 of 1861
Amendment: Accept Comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(g). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in assembly occupancies for not less than 1000 persons or in buildings above 23 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and marina. Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, Life Safety Code.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system
   (2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
       Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains
       information on proper installation requirements to maintain the fire rating.
   (3) Be protected by a listed thermal barrier system for electrical system components with a minimum
       2-hour fire rating
   (4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and
       contains only emergency wiring circuits.
   (5) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

A thickness of 2 in. of concrete does not achieve a minimum 2 hour fire rating. This issue should be addressed with Public or Committee Input during the next revision cycle to the NEC.

Signature:  

Name - Please Print: James L. Brown  

Date: 6/18/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:
Kimberly Shee
FAX: 617-984-7056
EMAIL: kshee@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE®  
TC BALLOT FOR CODE-MAKING PANEL 13  
JUNE 2013 ASSOCIATION AMENDMENT 78-29

Amendment: Accept Comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regns"). Under the Regns., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regns. at 4.7.1(b). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

(D) Fire Protection: Emergency systems shall meet the additional requirements in (D)(1) through (D)(3): in assembly occupancies for not less than 1000 persons or in buildings above 25 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, LIFE SAFETY CODE.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system
   (2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (THIT) contains information on proper installation requirements to maintain the fire rating.
   (3) Be protected by a listed internal barrier system for electrical system components with a minimum 2-hour fire rating
   (4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.
   (5) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regns., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":  

NO EVIDENCE THAT 2" OF CONCRETE IS SUFFICIENT FOR A 2-HOUR FIRE RATING

Signature: ____________________________

Name - Please Print: Kimberly Schenck, P.E.

Date: 29 June 2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kimberly Schenck  
FAX: 617-994-7056  
EMAIL: kshenck@nfpa.org

July 22, 2013  Supplemental Agenda July 29-August 1, 2013  Page 719 of 1861
Amendment: Accept Comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in assembly occupancies for not less than 1000 persons or in buildings above 23 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, Life Safety Code.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system
   (2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
   Informational Note: UL guide information for electrical circuit protective systems (FHT) contains information on proper installation requirements to maintain the fire rating.
   (3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating.
   (4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.
   (5) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

Items 2-4 insure that the conductors are protected by a 2 hr fire rating. The implication of #5 is that is also the equivalent of a 2 hour fire rating. It is not, refer to ACI 216.1-97 Table 2.1. It would require depending upon concrete type between 3.6"-5.0" to provide a 2 hour protection.

Signature: __________________________

Name - Please Print: Richard D. Carr Jr.

Date: 7/2/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:
NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regns"). Under the Regns, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regns at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

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Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, Life Safety Code.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system
   (2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
   Informational Note: UL guide information for electrical circuit protective systems (PHIT) contains information on proper installation requirements to maintain the fire rating.
   (3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating
   (4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.
   (5) Be encased in a minimum of 50 mm (2 in.) of concrete

This means, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regns that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree ✗ Do Not Agree* ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":
CMP 13 has already debated this issue in length.

Signature: [Signature]

Name - Please Print: [Name]

Date: [Date]

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kimberly Shea
PAX: 617-984-7056
EMAIL: ksheet@nfpa.org
NFPA 70, NATIONAL ELECTRICAL CODE ®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-29

Amendment: Accept Comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regos"). Under the Regos, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regos, at 4.7.1(a). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in assembly occupancies for not less than 1000 persons or in buildings above 23 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, Life Safety Code.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:

(1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system.

(2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

Informational Note: UL guide information for electrical circuit protective systems (PHIT) contains information on proper installation requirements to maintain the fire rating.

(2) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating.

(4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

(5) Be encased in a minimum of 50 mm (2 in.) of concrete.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regos, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

The American Standards WG is an American National Standards Institute approved group having and process standing authority to adopt American National Standards. The American National Standard that this document relates to is as follows:

Title: National Electrical Code, 2013 Edition

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Signature:

Date: 7/22/13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kimberly Shea
FAX: 617-984-7056
E-Mail: kshea@nfpa.org

July 22, 2013 Supplemental Agenda July 29-August 1, 2013 Page 722 of 1861
NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-29

Amendment: Accept Comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in assembly occupancies for not less than 1000 persons or in buildings above 23 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, Life Safety Code.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system.
   (2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating.

(4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

(5) Be encased in a minimum of 50 mm (2 in.) of concrete.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ☒ Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

This issue was thoroughly debated over the last two NEC cycles. The existing reference to "2 inches" is based on the physical protection requirements in 230.6 for service conductors. Substantiation provided for this revision included NFPA and ICC references that clearly illustrated that "2 inches" of concrete was inadequate.

The Correlating Committee and Standards Council should develop a task group to address this issue before the next NEC cycle.

Signature:  

Name - Please Print:  Linda Little

RECEIVED 06-26-13 11:09 FROM- 3146443589 TO- NFPA-Public Fire Pro P0003/0005
July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 723 of 1861
N.F.P.A. 70, NATIONAL ELECTRICAL CODE ®

tc Ballot for code-making panel 13
June 2013 association amendment 70-29

Amendment: Accept comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Reges"). Under the Reges, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Reges, at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in assembly occupancies for not less than 1000 persons in buildings above 23 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.


(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system
   (2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
   Informational Note: UL guides Information for electrical circuit protective systems (PHST) contains information on proper installation requirements to maintain the fire rating,
   (3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating
   (4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.
   (5) Be enclosed in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Reges, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  X Do Not Agree*  ☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

This topic was debated during this and the previous cycle with supporting material from N.F.P.A and ICC which substantiate 2 inches of concrete is not sufficient.

Signature: ____________________________

Name - Please Print: Dan Needer

Date: July 25, 2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kimberly Shea
Matthews, Diane

From: Jim White [vellin71@aol.com]
Sent: Tuesday, June 25, 2013 6:23 PM
To: Shea, Kimberly
Subject: CMP13 Ballots

Kimberly

I am in Savannah at the NFPA 70E committee meetings until Monday. Please accept this email as my ballot until I can scan and send the actual ballot forms.

I do not agree with the proposed changes. There was considerable discussion and evidence concerning the need for thicker concrete above grade. It was discussed at the CMP13 meeting about the possibility of a task group to investigate this more thoroughly. I still believe this is needed.

Best Regards

Jim

Although Jim is a member of the NFPA Technical Committee for NFPA 70E "Standard for Electrical Safety in the Workplace", NFPA 70E "Recommended Practice for Electrical Equipment Maintenance", NFPA NEC Code Making Panel 13 and is on the ASTM F-18 Committee "Electrical Protective Equipment for Workers" the views and opinions expressed in this message are purely the authors and shall not be considered an official position of NFPA, ASTM or any of their technical committees and shall not be considered to be, nor be relied upon as a formal interpretation or promotion of NFPA or ASTM.
Amendment: Accept Comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Reqs"). Under the Reqs, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Reqs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.10(D)(1) which reads as follows:

(1) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in assembly occupancies for not less than 1000 persons or in buildings above 23 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, Life Safety Code.

(F) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:

1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system

2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHP) contains information on proper installation requirements to maintain the fire rating.

3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating

4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

5) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether the ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Reqs, that recommendation is not binding, and, in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

Agree

Do Not Agree*

Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain".

Comment 13-76 and Proposed Action did not include any changes in the wording in paragraph 43. The proposed paragraph 43

should read as follows:

Daniel J. Carson
6/24/13
NEPA 70, NATIONAL ELECTRICAL CODE
TE BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-29

Amendment Accept/Comment 13-76

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Reg's"). Under the Reg's, if an Amendment fails the ballot of the Technical Committee, the text is returned to the previous edition text, see Reg's, Article 11.2.4(b). Please note that the Amendment that is the subject of this ballot recommends a return to previous edition text for 700.16[D](1) which reads as follows:

(D) Fire Protection. Emergency systems shall meet the additional requirements in (D)(1) through (D)(3) in the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

Informational Note: For the definition of Occupancy Classification, see Section 6.1 of NFPA 101-2009, Life Safety Code.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:
   (1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system.
   (2) Be listed electrical circuit protection system with a minimum 2-hour fire rating.

Informational Note: UL Guide Information for electrical circuit protective systems (ECP) contains information on proper installation requirements to maintain the fire rating.

(3) Be protected by a listed thermal barrier system for electrical system components within a minimum 2-hour fire rating.

(4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

(5) Be encased in a minimum of 6 inches (2 inches of concrete).

This means that, whether this ballot agree or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally accepts the default recommendation presented by the Reg's, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree  ■ Do Not Agree*  ■ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

I agree to return to previous text, "There was no field demonstration to justify a higher performance of 3" concrete.

Signature: E. Degnan

Name - Please Print: E. Degnan

Date: 6/24/13

Please return as soon as possible, but no later than Wednesday, June 26, 2013 to:

Kimberly Shea
FAX: 617-984-7056
EMAIL: kshea@nfpa.org

July 22, 2013 Supplemental Agenda July 29-August 1, 2013 Page 727 of 1861
Backup Proposal 13-109

13-109 Log #1117 NEC-P13  
(700.10(D)(1))  
Final Action: Accept in Principle  
(700.9(D)(1))  

Submitter: Thomas Guida, TJG Services, Inc.  
Recommendation: Revise text to read as follows:  
(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:  
(4) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating  
(5) Be encased in a minimum of 50 mm (2 in.) of concrete  
Substantiation: This proposal brings consistency of fire protection with article 695 and 708. An automatic fire suppression system is used to protect the building and the occupants after the fire starts.  
Emergency feeders can be damaged before the automatic fire suppression system is activated.  
Thermal barrier systems tested to UL 1742 are listed as Electrical Circuit Protective Systems (FHIT) contains information on proper installation requirements to maintain the fire rating.  

Panel Meeting Action: Accept  
Number Eligible to Vote: 21  
Ballot Results: Affirmative: 17 Negative: 4  
Explanation of Negative:  
CZARNECKI, N.: The allowance for 2" concrete encasement has been an acceptable method for providing fire protection for years in this section of the Code and no substantiation has been provided to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building Code does allow control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2" concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)(d), not necessarily their equivalency.  
DEGNAN, J.: See my statement on comment 13-46.  

Referenced Proposal 13-101, 13-72, and 13-46
There has been no substantiation to remove this useful technical change, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

Panel Meeting Action: Accept in Principle
Revise text to read as follows:
(d) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:
(1) Be encased in a minimum 100 mm (3-4 in.) of concrete-
(2) installed under not less than 50 mm (2 in.) of concrete on grade
(3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)
(4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception to (A)(2)(d): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Statement: The committee acknowledges that 2 in. of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 in. of concrete concept that was submitted during the 2011 cycle.

Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: The submitter commented in support of retaining the 2” of concrete that is in the 2011 code, the panel’s action to double the distance is not accepting the principle of the submitter’s proposal, it is completely changing the submitter’s intent.

While temperature performance issues have been identified with 2” of concrete, it is not clear that they will be resolved with 4” concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2” of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4” of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel’s assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.
Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows:

956.6(B) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and they shall be permitted to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

1. Be encased in a minimum 50 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.

2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating

FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception: The supply conductors located in the electrical equipment room where they originate and in the final disconnecting means shall not be required to have the minimum 1-hour fire separation or fire resistance rating, otherwise required by 700.9(D) of this Code.

Recommendation: The Technical Correlating Committee on National Electrical Code®, Panel Meeting Action: Accept in Principle

Panel Statement:

ODM: While test data shows that 2" of concrete fails to protect when subjected to a fire for 2 hours, fire isn’t the only consideration. In some egress scenarios, concrete encasement may offer physical protection that would prove more valuable than a system only designed for 2 hours fire.

13-76 Log #960 NEC-P13
(700.10(D)(1))

Submitter: William A. Wolfe, Steel Tube Institute

Comment on Proposal No: 13-109

Recommendation: Reject this proposal and retain text from 20 II NEC.

Substantiation: This proposal removes the allowance for 2-hour of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient justification for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalency to 2-hour fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable fire barriers, etc. The BC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between -not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2 hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)3 from the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject

Panel Statement: Proposal 13-109 does not modify 700.10(D)(1)(5). See 13-75a (Log 7CC1030).

Number Eligible to Vote: 21

Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:


Backup Proposal 13-109

13-109 Log #1117 NEC-P13
(700.10(D)(1))

Submitter: Thomas Guida, TIG Services, Inc.

Recommendation: Revise text to read as follows:

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:

(a) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system

(b) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(2) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating

(3) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

(4) Be protected in a minimum 50 mm (2 in.) of concrete

(5) Be encased in a minimum 50 mm (2 in.) of concrete

Substantiation: This proposal brings consistency of fire protection with article 695 and 708. An automatic fire suppression system is used to protect the building and the occupants after the fire starts.

Emergency feeders can be damaged before the automatic fire suppression system is activated.

Thermal barrier systems tested to UL 1724 are listed as Electrical Circuit Protective Systems are already included in (2). See section 1.4 (scope) in UL 2196 - Tests for Fire Resistant Cables.

Panel Meeting Action: Accept

Renumber (4) and (5) as (3) and (4).

Panel Statement: CMP-13 accepts deletion of (3).

CMP-13 does not accept deletion of (1). Section 708.20(B) requires fire suppressions systems as follows: (B) Fire Protection. Where located within a building, equipment for sources of power as described in Sections 708.20(E) through (H) shall be installed either in spaces fully protected by approved automatic fire suppression systems (sprinklers, carbon dioxide systems, and so forth) or in spaces with a 2-hour fire rating. Existing (1) must remain to provide fire suppression or a 2-hour time frame for evacuation.

Number Eligible to Vote: 18

Ballot Results: Affirmative: 18

Referenced Comment 13-75a

13-75a Log #CC103 NEC-P13
(700.10(D)(1))


Recommendation: Revise the action on Proposal 13-101 as follows:

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:

(a) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system

(b) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(2) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating

(3) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

(4) Be protected in a minimum 50 mm (2 in.) of concrete

(5) Be encased in a minimum 50 mm (2 in.) of concrete

Substantiation: The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable. The recommendation includes the action taken on Proposal 13-109 for clarity.

Panel Meeting Action: Accept

Number Eligible to Vote: 21

Ballot Results: Affirmative: 17 Negative: 4

Explanation of Negative:

CZARNECKI, N.: The allowance for 2" concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no substantiation has been provided to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building Code does allow control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2" concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)(d), not necessarily their equivalency.


Referenced Proposal 13-101, 13-72, and 13-46

13-101 Log #12 NEC-P13
(700.9(D)(1))

Note: This Proposal appeared as Comment 13-125 (Log #1643) which was held from the A2010 ROC on Proposal 13-172. The Recommendation on Proposal 13-172 was: Revise text as follows:

700.9(D) Fire Protection. Emergency systems shall meet the additional requirements in 700.9(D)(1) and (D)(2) in assembly occupancies for not less than 1000 persons or in buildings above 23 m (75 ft) in height with any of the following occupancy classes: assembly, educational, residential, detention and correctional, business, and mercantile.

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:

(a) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system

(b) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(2) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating

(3) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

(4) Be protected in a minimum 50 mm (2 in.) of concrete

(5) Be encased in a minimum 50 mm (2 in.) of concrete

Substantiation: The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable. The recommendation includes the action taken on Proposal 13-109 for clarity.

Panel Meeting Action: Accept

Number Eligible to Vote: 21

Ballot Results: Affirmative: 17 Negative: 4

Explanation of Negative:

CZARNECKI, N.: The allowance for 2" concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no substantiation has been provided to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building Code does allow control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2" concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)(d), not necessarily their equivalency.


There has been no substantiation to remove this useful and logical phrase, nor has there been any substantiation submitted that it compromised the safety of the building or that it has ever failed to provide protection during an actual fire.  

Panel Meeting Action: Accept in Principle  

Revise text to read as follows:  

(d) Inside of a Building: Where routed through a building, the conductors shall be installed using one of the following methods:  

(1) Be encased in a minimum 100 mm (4 in.) of concrete  

(2) Installed under not less than 50 mm (2 in.) of concrete on grade

(3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)

(4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception to (A)(2)(d): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Statement: The committee acknowledges that 2 in. of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 in. of concrete concept that was submitted during the 2011 cycle.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:

DEGNAN, J.: The submitter commented in support of retaining the 2" of concrete that is in the 2011 code, the panel's action to double the distance is not accepting the principle of the submitter's proposal, it is completely changing the submitter's intent.

While temperature performance issues have been identified with 2" of concrete, it is not clear that they will be resolved with 4" concrete. If the panel changes the code, they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: "Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall." Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel's assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.
Backup Proposal 13-68

13-68 Log #10 NEC-P13
(695.6(B))

Final Action: Accept in Principle

Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows:

695.6(B) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

1. Be encased in a minimum 50 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating.

2. Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

3. Be a listed electrical circuit protective system with a minimum 2-hour fire rating

FPN: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.9(D) of this Code.

Submitter: Technical Correlating Committee on National Electrical Code®

Recommendation: The Technical Correlating Committee directs that this comment be reported as “Hold” as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equated to a 2 hour fire-rating has not had public review.

Substantiation: This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept in Principle

Revise 695.6(A)(2)(d) to read as follows:

1. Be encased in a minimum 50 mm (2 in.) of concrete.

2. Be protected by a fire-rated assembly, consisting of gypsum wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).

3. To renumber as (2).

Informational Note is unchanged.

Panel Statement: CMP-13 agrees with the submitter that there is no evidence that 2 in. of concrete will attain a 2-hr fire rating. The language is consistent with language throughout the NFPA standards pertaining to construction requirements.

Number Eligible to Vote: 18

Ballot Results: Affirmative: 16 Negative: 2

Explanation of Negative:

ODE, M.: The Proposal did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. UL does not list concrete by itself for a fire rating so any UL fire rated assembly would involve a complete assembly of building materials, often including concrete and other materials. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.


Referenced Proposal 13-67

13-67 Log #1118 NEC-P13
(695.6(A)(2)(d)(1))

Final Action: Accept in Principle

Submitter: Thomas Guida, TJG Services, Inc.

Recommendation: Accept the panel action on ROC 13-102 from the 2010 Annual Revision Cycle.

Substantiation: The fire protection requirement for critical circuits in Article 695 is 2-hr. Although 2 inches of concrete was used to meet a 1-hr fire protection requirement, it is well documented in the IBC and NFPA Fire Protection Handbooks that 2 inches of concrete encasement is not sufficient for 2-hr fire protection. The panel action provided a prescriptive value (4 inches) of concrete that allows for objective enforcement.

Panel Meeting Action: Accept in Principle

Panel Statement: See action and statement on Proposal 13-68.

Number Eligible to Vote: 18

Ballot Results: Affirmative: 17 Negative: 1

Explanation of Negative:

ODE, M.: The Proposal did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. UL does not list concrete by itself for a fire rating so any UL fire rated assembly would involve a complete assembly of building materials, often including concrete and other materials. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

but it may give you some time to get some food.

But we're going to restart here in 30 minutes which is about 1 o'clock.

(Off the record at 12:25 p.m.)

(On the record at 1:06 p.m.)

MR. BELL: Take a seat. Please take a seat.

We're looking for a motion on Sequence Number 70-29.

MS. THOMPSON: Mr. Chairman, Elaine Thompson, representing the Steel Tube Institute. I move to accept Comment 13-76.

MR. BELL: Motion on the floor is to accept Comment 13-76. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MS. THOMPSON: Yes, this motion again has to do with 2 inches versus 4 inches of concrete encasement but this time in Article 700, Emergency Systems, and it has to do with feeder circuit wiring.

Right now, the NEC allows five different methods of providing this protection. One, that the wiring can be installed in spaces or areas that are protected by automatic fire suppression systems. They can be an electrical circuit protective system with a two-hour fire rating; a listed thermal barrier systems, two-hour fire-rating; a listed fire-rating assembly; or,
again, encasing 2 inches of concrete. So I think we have listened to a lot of comments. The remarks that I have made on the previous comments and motions that I moved are the same as for this, that there is no adequate substantiation for the change from 2 inches of concrete to 4 inches of concrete; and this motion, therefore, should be accepted to take the language back to the 2011 Code.

MR. BELL: Thank you. I do want to point out here again that if this motion passes, we will not entertain a motion on Motion Sequence Number 70-30 because the action on this motion would render it moot. So if you do want to discuss the merits of sequence 70-30, it would be appropriate to do it here. Mr. Johnston.

MR. JOHNSTON: Thank you, Mr. Chair. Once again, on this issue, I would like to defer to Interim Chair Panel 13, John Kovacik, please.

MR. KOVACIK: Thank you, Michael. I am

John Kovacik, Underwriters Laboratories, Interim Panel Chair for Code Panel 13, and speaking on behalf of Code Panel 13 against the motion on the floor.

This is, indeed, the same issue that we’ve been discussing. The only difference here, of course, it’s a different Article, 700 on Emergency Systems. The panel considers Article 700 to be no
9 more important or nor less important than
10 Article 695. So the issues are pretty much all the
11 same.
12 Again, I would like to emphasize that here
13 also we have a compromise where both sides can take
14 away a measure of success from this battle. I urge
15 you to vote against the motion on the floor. Thank
16 you.
17 MR. BELL: Thank you. Microphone 3.
18 MR. NASBY: My name is Jim Nasby again. I'm
19 speaking in favor of this motion.
20 I would like to bring out a couple of
21 things for consideration of the membership. Number
22 one, this wiring that is being addressed here is
23 not often under the floor. It's typically in the
24 vertical chases in high-rises. And, again, with
25
26 the withdrawal of the UL listed products under UL
27 21-96, this would be an extremely onerous thing to
28 try to impose on people installing this wiring in
29 high-rise buildings. Again, since no faults or
30 fuel problems have ever been experienced with the
31 2 inches of concrete, it's important for them to be
32 able to retain that ability to do that especially
33 in lieu of now the much more limited options with
34 regards to listed circuit protective systems.
35 Thank you.
36 MR. BELL: Thank you. Microphone 5.
37 MR. HIRSCHLER: Marcelo Hirschler,
38 GBH International, speaking for NAFRA, in
opposition to the motion.

As it has been pointed out by both Elaine and John Kovacik, this is the same issue, but it's not in the sense that we are now dealing with Article 700 as opposed to just simply fire pumps. So Article 700 requires a lot more severe type of protection. So I urge you to retain the two-hour fire-resistance rating protection and oppose the motion. Thank you.

MR. BELL: Thank you. Microphone 6. Is there anybody at Microphone 6?

MR. DAGENAIS: My name is Dave Dagenais, and I'm speaking on behalf of the Healthcare section in support of this motion.

Yesterday, at the Healthcare section meeting, our membership was polled and voted unanimously to support this motion. The Healthcare section supports the concept that there is a need to protect the feeders. However, we identified that there are three options that -- many, many options that are available which we saw that the maker of the motion indicate.

The first issue we have with this is that the new suggested language basically deletes the option of using all of the options available to us. Specifically the previous language allowed you one through five options. The original proposal which was submitted, 13-109, was asking to eliminate
Option 1 which was suppression system and Option 3 which is thermal barrier system. The Code-Making Panel did not accept to eliminate Option 1. However, they did strike out Option 3, thermal barrier system because it seems that they believe that this is covered within Option 2 which is listed electrical circuit protection system.

On this matter, we believe that the separation of those items within the options gives the user a greater understanding and clarity to the document. So we think that this shouldn't remain in the previous text.

During the comment phase, the panel accepted Option 5 or, I should say, amended Option 5 from 2 inches to 4 inches. Again, this was in the comment phase and not during the proposal phase. This is another example of where a change was made during the comment phase that was not able to be vetted to the public.

We believe this imposes a substantial increase in requirements. The change was done without technical substantiation nor has it received proper public input. The Healthcare section urges you to support this motion and return the text to the previous edition. This will provide the users a user-friendly document as well as a reasonable document. Thank you.


MR. CONRAD: James Conrad, RSAC Wire & Cable.

This is not new material for the comment period. These were actually brought back by a Correlating Committee action during the 2011 Cycle. So these have had plenty of review during two cycles. The original proposal was concrete equivalent to two hours; and then in 2011, it says 4 inches. That got overturned by the Correlating Committee saying new material, and we brought it back. So it's had plenty, plenty of review as far as 2 inches, 4 inches or 5 inches, two-hour requirements.

Again, I want to point your attention that these are emergency circuits for high-rise buildings. You have to have 75 feet or greater. So we don't -- we have to get people out, but we want to continue supplying emergency power regardless if it's a healthcare facility or a high-rise building or an assembly like we are today. We need to provide emergency power for our first responders greater than one hour. The Committee has made that clear. We now want two-hour protection for the emergency circuits.

There are several options available. Two-hour fire-rated electrical circuit protective
systems. There are about 12 on the UL web site. Please look them up. They have not all been withdrawn. Some of the cables have, but not the electrical circuit protective systems.

As far as the concrete encasement goes, again, it is well-documented. And I have issues with somebody saying the testing was done at grade. I have been to UL for the last 20 years watching concrete tests. The UL tests concrete in the same manner as they test a drywall assembly or enclosure which is one of the options in 695 and 700. They place a concrete slab on the furnace. They measure the temperature throughout the slab as well as the unexposed surface of it. And, again, you can reach temperatures as high as 600 degrees at 2 inches in.

It is well-documented. And if UL has information or documentation saying that 2 inches will achieve a two-hour rating, please stand up and submit it to us and stop the magic tricks.

I speak in opposition of the motion. Thank you, Mr. Chairman.

MR. BELL: Thank you. Microphone 3.

MR. BACLAWSKI: Thank you, Mr. Chairman.

Vince Baclawski, National Electrical Manufacturers Association.

NEMA speaks in support of the motion.

Thank you.
MR. BELL: Thank you. Microphone 5.

MR. DOLLARD: Jim Dollard from the International Brotherhood of Electrical Workers. I rise in opposition to the motion on the floor.

I would like to first inform the audience that there was abundant public input in the proposal stage and more than adequate technical substantiation to get this done.

So the issue is the same. Two-hour fire rating. Do we want 2 inches of concrete or do we want 4 inches of concrete? So it's still the same now, but it's dynamically different in now that we're in Article 700, Emergency Systems. And when we're done here for consistency, we need to do the same exact thing when we go into Article 708 for critical operations power systems.

We have the technical substantiation. It had public input. This is not fire pumps as some of the debate that we heard earlier which may have swayed you the other way, and that had to do with a pump that maybe we only needed for an hour or 90 minutes due to the water supply. This is dynamically different. It's emergency systems, and we need to oppose the motion on the floor. Thank you, Mr. Chairman.


MR. BEEBE: Chad Beebe, American Society for Healthcare Engineering of the American Hospital Association, and I rise in support of the motion.
that's before you.
The 2-inch requirement has been in the
Code for several, several cycles. It's never been
a problem, and I don't see any data that's being
provided to show that this needs to be changed at
this time. I understand that the discussions of
the Committee meeting went on for several hours to
try to determine whether it should be 4 inches,
3 inches, 25 inches I guess.
With that, why are we trying to make this
change? No data has been provided to support the
motion, and let's regroup.

MR. BELL: Thank you. Microphone 3.
MS. THOMPSON: Thank you, Mr. Chairman.

Elaine Thompson, representing Steel Tube Institute.
In terms of the substantiation that was

provided, I'd just like to point out, I believe all
the substantiation were the tables from the IBC,
the fire endurance tables, and as one of our
speakers from University of Maryland pointed out
that that really isn't applicable to these
installations in terms of making that comparison.
Thank you.

MR. CONRAD: James Conrad, RSCL again,

Everybody keeps saying 2 inches has worked
historically well. That's a true statement when we
wanted one-hour protection. Then we were not
debating the one-hour versus two hours.

It has been decided after several major
fires, a couple in this city and 9-11 and other
events around the world that we need to keep the
emergency power operating to help our first
responders fight high-rise buildings using the
elevators, pressurization, and all the emergency
circuits. So you can't stand here and say 2 inches
has worked well when the requirement has changed to
two hours. Thank you, Mr. Chair.

MR. BELL: Thank you. Microphone 3.

MR. NASBY: Jim Nasby again, speaking in favor
of this motion.

Again, we're hearing people trying to draw
a technical correlation between thickness of
concrete of some type or other and hour rating in
the absence, again, of field experience showing
that there was a problem with the 2 inches. And,
again, by making things less practical, it forces
engineers to take other means and schemes; and,
again, those are very limited right now because of
the withdrawal of the UL standard on many circuit
protective systems until those are retested.

So, again, in the absence of any kind of
evidence that the existing requirements are
inadequate, I ask for support of this motion.

Thanks.

MR. BELL: Thank you. Any further discussion
Seeing no one at the mics, Mr. Johnston.

MR. JOHNSTON: I have no additional comments, Mr. Chair.

MR. BELL: All right. With that, we'll move to the motion on the floor which is to accept Comment 13-76. Press 1 if you're in favor of the motion, and press 2 if you're against the motion. Vote now. 5 seconds.

Voting is closed. Motion passes.

With that, we're not going to entertain a motion on 70-30. So we're going to skip to 70-31.


MR. BELL: The motion on the floor is to accept Comment 13-101. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MS. THOMPSON: Again, this is the same type of issue we've just been debating for quite some time now except this is in Article 708, Critical Operations Power Systems, and it has to do with 708.10(C)(2), Fire Protection for Feeders. And again I will stand by my previous remarks and ask that the provision for the allowance of 2 inches of concrete be retained in the Code and that you accept this comment.
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 19, 2013

AMENDMENT (70-29)

Document: NFPA 70, *National Electrical Code*

Motion: To Accept Comment 13-76

**CC FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS** achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is \( 9 \) \[12 (eligible to vote) – 0 (ballots not returned) – 0 (abstention) = 12 \times 0.75 = 9\]

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<th>12 Eligible to Vote</th>
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<td>0 Yes correlation issues</td>
<td>12 No correlation issues</td>
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<tr>
<td>0 Abstain</td>
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**CC Action: PASS**

**CMP 13 FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS NOT** achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is \( 12 \) \[20 (eligible to vote) – 2 (ballots not returned) – 0 (abstentions) = 18 \times 0.66 = 11.88\]

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<td>9 Do Not Agree (Adams, Brown, Constantine, Currin, Jr., Froemming, Keenan, Little, Neeses, White)</td>
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<td>0 Abstain</td>
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</table>

**CMP Action: FAIL**
Ms. Linda Fuller  
Manager, Codes and Standards Administration  
National Fire Protection Association  
1 Batterymarch Park  
Quincy, MA 02169  

Subject: Certified Amending Motions 70-26, 70-27, 70-29 & 70-31  

Dear Ms. Fuller,  

I would like the opportunity to speak at the Standards Council meeting on behalf of action taken on CAM 70-26, 70-27, 70-29 & 70-31. This motions should have been withdrawn after CAM 70-23 and 70-24 were defeated at the June 13, 2013 Technical Session. The CAM’s referenced above all address the same issue, 2 inches of concrete vs 4 inches of concrete. Although, these CAM’s affected different sections the issues was the same, 2 inches of concrete. This is apparent by looking at the comments that address this issue. The negative comments for 13-47, 13-49, 13-54, 13-59, 13-62, 13-76, 13-86, 13-101, 13,102, 13-104 & 13-105 all refer back to either 13-46 or 13-72.  

Additionally, comment 13-75a made other changes than the concrete issue and none of these changes were discussed by the submitters or the CAM but the action taken at the Technical Session could undo the committees work.  

Sincerely,  

James Conrad

A Marmon Wire & Cable/Berkshire Hathaway Company

Attachment 13-8-3-k-1
Submittal: Richard E. Loyd, Sun Lakes, AZ

Comment on Proposal No: 13-68

Recommendation: Reconsider and retain (1) be encased in 50mm (2 inches) of concrete.

Substantiation: I agree with Degnan and Ode’s comments on their negative voting.

This requirement has been in the code continuously since Article 695 first appeared in the NEC. The submitter is in error as the 2-hour fire rating being discussed was never a condition for using 695.6(A)(2)(d)(1). The committee’s substantiation is also in error in comparing the 2 inches of concrete with a 2 hr fire rating.

There has been no substantiation to remove this useful condition of use, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(d) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:

(1) Be encased in a minimum 50 mm (2 in.) of concrete
(2) Be installed under not less than 50 mm (2 in.) of concrete on grade
(3) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)
(4) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception to (A)(2)(d): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Statement: The committee acknowledges that 2 in. of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 in. of concrete concept that was submitted during the 2011 cycle.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:

DEGNAN, J.: The submitter commented in support of retaining the 2” of concrete that is in the 2011 code, the panel’s action to double the distance is not accepting the principle of the submitter’s proposal, it is completely changing the submitter’s intent.

While temperature performance issues have been identified with 2” of concrete, it is not clear that they will be resolved with 4” concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2” of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4” of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each
application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel's assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.
<table>
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<tr>
<th>Comment No.</th>
<th>Log #</th>
<th>NEC-P</th>
<th>Proposal</th>
<th>Final Action</th>
<th>Submitter</th>
<th>Recommendation</th>
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<tr>
<td>13-47</td>
<td>956</td>
<td>NEC-P13</td>
<td>695.6(A)(2)(d)(1))</td>
<td>Reject</td>
<td>William A. Wolfe, Steel Tube Institute</td>
<td>Reject the proposal and retain the text in the 2011 NEC.</td>
<td>This proposal removes the allowance for 2&quot; of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 NEC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2&quot; of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a &quot;listed&quot; concrete assembly. The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 20 II Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory. Note: Supporting material is available for review at NFPA Headquarters.</td>
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<td>Panel Meeting Action: Reject</td>
<td>Panel Statement: See the panel action and statement on comment 13-46.</td>
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<td>Number Eligible to Vote: 21</td>
<td>Ballot Results: Affirmative: 18 Negative: 3</td>
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13-49 Log #1211 NEC-P13 Final Action: Reject
(695.6(A)(2)(d)(1))

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-67
Recommendation: Reject this proposal.
Substantiation: I agree with the negative vote comments by M. Ode. Also, the 2" concrete requirement appears over a dozen times in NFPA-70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2" conduit installation; plus twice the floor area. This would be even more horrendous on retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-46.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-54 Log #1213 NEC-P13 (695.6(B)) Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-68
Recommendation: Do not remove the option of 2 in. of concrete. Do not delete said text.
Substantiation: I agree with the negative vote comment by J. Degnan. Further, also, 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many additions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2 conduit installation: plus twice the floor area. This would be even more horrendous on retrofit installations. While I didn't agree with increasing the requirements for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.
Panel Meeting Action: Accept in Principle
Panel Statement: See the panel action and statement on comment 13-46. CMP 13 does not agree with the submitter's substantiation.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 19 Negative: 2
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-59 Log #958 NEC-P13
(695.14(F)) Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-85
Recommendation: Reject the proposal and retain 2011 NEC text.
Substantiation: This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states in his similar proposal to 13-67 that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalently to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See 13-58a (Log #CC1302).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-86
Recommendation: Reject this proposal and retain the text in 2011 NEC.
Substantiation: This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2 hr. fire protection. In fact, the 2012 NEC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See 13-58a (Log #CC1302).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 19 Negative: 2
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-72     Log #1473  NEC-P13
(700.9(D)(1))

Final Action: Reject

Submitter: John R. Kovacik, UL LLC
Comment on Proposal No: 13-101
Substantiation:  There were no incidents cited or problems identified that justify the removal of this requirement. The 2 in of concrete is a long-standing requirement that has a history and proven track record of providing adequate fire protection for conductors.

The added requirement that concrete or other material be listed to achieve a minimum fire rating is impractical for concrete. UL does not test concrete alone for a fire rating and such a program would be difficult if not impossible to develop based on the variables involved in preparation, finishing, curing, treating, etc.

The proponents of this proposal have argued that 2 in. of concrete does not equate to 2 hours of fire protection on the basis that the 2 in. concrete requirement was in the NFPA 20 Fire Pump Standard when the required fire rating for conductors was 1 hour, and the 2 in. concrete requirement was left unchanged when the fire rating for conductors was increased to 2 hours. The 2 in. of concrete has never been claimed to provide a specific time-sensitive fire rating or been considered to equate to a specific fire rating. It is an alternative method of protection for conductors and its removal from the NEC will cause a hardship in that it will force installers to use protection methods that may not be superior to 2 in. of concrete.

Panel Meeting Action:  Reject
Panel Statement:  See 13-75a (Log #CC1303).
Number Eligible to Vote:  21
Ballot Results:  Affirmative: 18  Negative: 3
Explanation of Negative:

DEGNAN, J.:  While temperature performance issues have been identified with 2” of concrete, it is not clear that they will be resolved with 4” concrete.  If the panel changes the code they should be able to cite field performance data that substantiates that 2” of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4” of concrete.

13-75a  Log #CC1303  NEC-P13
(700.10(D)(1))

**Submitter:** Code-Making Panel 13,
**Comment on Proposal No:** 13-101

**Recommendation:** Revise the action on Proposal 13-101 as follows:

(1) **Feeder-Circuit Wiring.** Feeder-circuit wiring shall meet one of the following conditions:

1. Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system
2. Be a listed electrical circuit protective system with a minimum 2-hour fire rating

**Informational Note:** UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating

(4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency wiring circuits.

(5) Be encased in a minimum 100 mm (2-4 in.) of concrete

The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable. The recommendation includes the action taken on Proposal 13-109 for clarity.

**Panel Meeting Action:** Accept
**Number Eligible to Vote:** 21

**Ballot Results:** Affirmative: 17  Negative: 4

**Explanation of Negative:**

CZARNECKI, N.: The allowance for 2” concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no substantiation has been provided to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building Code does allow control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2” concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)d), not necessarily their equivalency.


13-76  Log #960  NEC-P13  Final Action: Reject  
(700.10(D)(1))

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-109
Recommendation:  Reject this proposal and retain text from 20 II NEC.
Substantiation:  This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between the other methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement:  Proposal 13-109 does not modify 700.10(D)(1)(5). See 13-75a (Log #CC1303).
Number Eligible to Vote:  21
Ballot Results:  Affirmative: 18  Negative: 3
Explanation of Negative:
13-86 Log #1215 NEC-P13 Final Action: Accept in Principle
(700.100(D)(1)(5))

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-128
Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.
Substantiation: 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.
Panel Meeting Action: Accept in Principle
Panel Statement: See the action on 13-75a (Log #CC1303). CMP 13 does not agree with the submitter's substantiation.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-101 Log #961 NEC-P13 Final Action: Reject
(708.10(C))

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-167
Recommendation: Reject this proposal and retain the text in 2011 NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the panel action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-102 Log #962 NEC-P13
(708.10(C))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-168
Recommendation: Reject this proposal and retain the text in 2011 NEC.

Substantiation: This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:
13-104 Log #1216 NEC-P13
(708.10(C)(2))

Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-167
Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.
Substantiation: 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Accept in Principle
Panel Statement: See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter's substantiation.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-105  Log #1217  NEC-P13  (708.10(C)(2)(3))  Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-168
Recommendation:  Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.
Substantiation:  2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.
Panel Meeting Action: Accept in Principle
Panel Statement:  See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter's substantiation.
Number Eligible to Vote: 21
Ballot Results:  Affirmative: 18  Negative: 3
Explanation of Negative:
### Floor Action on Certified Amending Motions
#### Documents for the June 2013 Association Technical Meeting

<table>
<thead>
<tr>
<th>Motion Seq #</th>
<th>NITMAM Log #</th>
<th>Time</th>
<th>Section/Para</th>
<th>Person(s) Authorized to Make the Motion</th>
<th>Certified Amending Motion**</th>
<th>Floor Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-29</td>
<td>1169</td>
<td></td>
<td>700.10(D)(1)</td>
<td>Elaine Thompson &amp; Richard Loyd, Steel Tube Institute of North America †E. Thompson &amp; R. Loyd are the Desig. Reps for W. Wolfe</td>
<td>Accept Comment 13-76</td>
<td>Passed 115-112</td>
</tr>
</tbody>
</table>
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-31)

DOCUMENT: NFPA 70, National Electrical Code

MOTION: To Accept Comment 13-101 and thereby Reject Proposal 13-167

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS/HAS NOT achieved the necessary $\frac{3}{4}$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is $\Box$ [12 (eligible to vote) – $\Box$ (ballot not returned) – $\Box$ (abstention) = $\Box \times 0.75 = \Box$]

| _______ | _______ | _______ |
| ____ | _______ | _______ |
| Approve | Not Returned |

CC Action: PASS/FAIL

CMP 13 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS NOT achieved the necessary $\frac{2}{3}$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 12 [20 (eligible to vote) – 2 (ballots not returned) – 0 (abstentions) = 18 $\times 0.66 = 11.88$]

| _______ | _______ | _______ |
| _______ | _______ | _______ |
| Eligible to Vote | Not Returned (Spina, Tobias, Jr.) |

9 Agree
9 Do Not Agree (Adams, Brown, Constantine, Currin, Jr., Froemming, Keenan, Little, Neeser, White)
0 Abstain

CMP Action: FAIL
NPPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-31

Amendment: Accept Comment 13-101 and thereby Reject Proposal 13-1.67

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Reggs"). Under the Reggs, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to its previous edition text. See Reggs, at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 708.10(C)(2) be returned to its previous edition text. In this case, the result is:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating.
   Informational Note: UL guide information for electrical circuit protection systems (FHT) contains information on proper installation requirements to maintain the fire rating.
(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours.
(3) Be encased in a minimum of 50 min (2 in.) of concrete.

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to its previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Reggs, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*  

☐ Abstain*  

*Please give reasons for voting "Do Not Agree" or "Abstain":
I agree with the substantiation given by the Celph for rejecting Comment 13-101.

Please return as soon as possible, but no later than Wednesday, June 26, 2013, to docuser@nppa.org or via fax to 617-984-7070:

Signature: ____________________________

Name - Please Print: Kurtin K. Mather

Date: 6-19-13

July 22, 2013  Supplemental Agenda July 29-August 1, 2013  Page 764 of 1861
Amendment: Accept Comment 13-101 and thereby Reject Proposal 13-167

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 708.10(C)(2) be returned to previous edition text. In this case, the result is:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
Informational Note: UL guide information for electrical circuit protection systems (FHIT) contains information on proper installation requirements to maintain the fire rating.
(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours
(3) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

A thickness of 2 in. of concrete does not achieve a minimum 2 hour fire rating. This issue should be addressed with Public or Committee input during the next revision cycle to the NEC.

Signature:  

Name - Please Print:  James L. Brown

Date: 6/18/2013

Please return as soon as possible, but no later than Wednesday, June 26, 2013, to kheaf@nfpa.org or via fax to 617-984-7070:
NFPA 70, NATIONAL ELECTRICAL CODE ®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-31

Amendment: Accept Comment 13-101 and thereby Reject Proposal 13-167

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regx"). Under the Regx, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regx. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 708.10(C)(2) be returned to previous edition text. In this case, the result is:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating;
   Informational Note: UL guide information for electrical circuit protection systems (FEPIT) contains information on proper
   installation requirements to maintain the fire rating.
(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours
(3) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regx, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

No evidence that 2" of concrete is sufficient for a 2-hour fire rating.

Please return as soon as possible, but no later than Wednesday, June 26, 2013, to jsher@nfvpa.org or via fax to 617-984-7070:

Signature: __________________________

Name - Please Print: __________________

Date: ____________
Amendment: Accept Comment 13-101 and thereby Reject Proposal 13-167

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 708.10(C)(2) be returned to previous edition text. In this case, the result is:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protection systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours

(3) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

X Do Not Agree*

☐ Abstain*

*Please give reasons for voting “Do Not Agree” or “Abstain”:

The implication of #3 is that is the equivalent of a 2 hour fire rating. It is not, refer to ACI 216.1-97 Table 2.1. It would require depending upon concrete type between 3.6",5.0" to provide a 2 hour protection.

Please return as soon as possible, but no later than Wednesday, June 26, 2013, to kshea@nfpa.org or via fax to 617-984-7070:

Signature: [Signature]

Name - Please Print: Richard D. Currin Jr.

Date: 7/02/2013

July 22, 2013

Supplemental Agenda July 29-August 1, 2013

Page 767 of 1861
Amendment: Accept Comment 13-101 and thereby Reject Proposal 13-167

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 708.10(C)(2) be returned to previous edition text. In this case, the result is:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
   Informational Note: UL guide information for electrical circuit protection systems (FHIT) contains information on proper installation requirements to maintain the fire rating.
(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours
(3) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

COMP 13 has already debated this issue in length.

Please return as soon as possible, but no later than Wednesday, June 26, 2013, to kbees@nfpa.org or via fax to 617-984-7070:

Signature: [Signature]

Name - Please Print: Steve Froemming

Date: 6/25/13
NFPA 70, NATIONAL ELECTRICAL CODE ©
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-31

Amendment: Accept Comment 13-101 and thereby Reject Proposal 13-167

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regus"). Under the Regus, if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regus at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 708.10(C)(2) be returned to previous edition text. In this case, the result is:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
   Informational Note: UL guide information for electrical circuit protection systems (FHIT) contains information on proper
   installation requirements to maintain the fire rating.
(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours
(3) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regus, that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree

☒ Do Not Agree*

☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

The American Concrete Institute and American Society for Civil Engineers agree through testing and through existing building
codes that 2 inches of concrete will not provide a 2-hour fire resistance rating. If the committee desires to have conductors survive
for two hours in an emergency situation then the proposed 2 inch requirement is not adequate and needs change.

Please return as soon as possible, but no later than Wednesday, June 26, 2013, to kheas@nfpa.org or via fax to 617-984-7070.

Signature: [Signature]

Name - Please Print: [Name]

Date: [Date]
Supplemental Agenda July 29-August 1, 2013

NFPA 70, NATIONAL ELECTRICAL CODE®
TC BALLOT FOR CODE-MAKING PANEL 13
JUNE 2013 ASSOCIATION AMENDMENT 70-31

Amendment: Accept Comment 13-101 and thereby Reject Proposal 13-167

NOTE: This Association Amendment ("Amendment") is being submitted for a ballot for the Technical Committee pursuant to section 4.7.1 of the Regulations Governing Committee Projects ("Regs"). Under the Regs., if an Amendment fails the ballot of the Technical Committee, the text affected by the Amendment returns to previous edition text. See Regs. at 4.7.1(c). Please note that the Amendment that is the subject of this ballot recommends 708.10(C)(2) be returned to previous edition text. In this case, the result is:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
Informational Note: UL guide information for electrical circuit protection systems (FHIT) contains information on proper installation requirements to maintain the fire rating.
(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours
(3) Be encased in a minimum of 50 mm (2 in.) of concrete

This means that, whether this ballot agrees or disagrees with the Amendment, the default recommendation to the Standards Council will be to return to previous edition text. While the Standards Council generally defers to the default recommendation prescribed by the Regs., that recommendation is not binding, and in the event of an appeal to the Standards Council, the Technical Committee ballot results will be reviewed and considered by the Council as part of its deliberations. It is important, therefore, that you provide your vote and reasoning for the consideration of the Council.

☐ Agree
☒ Do Not Agree*
☐ Abstain*

*Please give reasons for voting "Do Not Agree" or "Abstain":

This issue was thoroughly debated over the last two NEC cycles. The existing reference to "2 inches" is based on the physical protection requirements in 230.6 for service conductors. Substantiation provided for this revision included NFPA and ICC references that clearly illustrated that "2 inches" of concrete was inadequate.

The Correlating Committee and Standards Council should develop a task group to address this issue before the next NEC cycle.

Please return as soon as possible, but no later than Wednesday, June 26, 2013, to kabea@nfpa.org or via fax to 617-984-3070;

Signature: Linda J. Little

Linda Little 6/26/13

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 770 of 1861
Supplemental Agenda July 29-August 1, 2013

July 22, 2013
Page 771 of 1861

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
From: Jim White [vettn71@aol.com]
Sent: Tuesday, June 25, 2013 6:23 PM
To: Shea, Kimberly
Subject: CMP13 Ballots

Kimberly

I am in Savannah at the NFPA 70E committee meetings until Monday. Please accept this email as my ballot until I can scan and send the actual ballot forms.

I do not agree with the proposed changes. There was considerable discussion and evidence concerning the need for thicker concrete above grade. It was discussed at the CMP13 meeting about the possibility of a task group to investigate this more thoroughly. I still believe this is needed.

Best Regards

Jim

Although Jim is a member of the NFPA Technical Committee for NFPA 70E "Standard for Electrical Safety in the Workplace", NFPA 70B "Recommended Practice for Electrical Equipment Maintenance", NFPA NEC Code Making Panel 13 and is on the ASTM F-18 Committee "Electrical Protective Equipment for Workers" the views and opinions expressed in this message are purely the authors and shall not be considered an official position of NFPA, ASTM or any of their technical committees and shall not be considered to be, nor be relied upon as a formal interpretation or promotion of NFPA or ASTM.
13-101 Log #961 NEC-P13
(708.10(C))

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-167
Recommendation: Reject this proposal and retain the text in 2011 NEC.
Substantiation: This proposal removes the allowance for 2” of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2” of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 provided allows control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a “listed” concrete assembly.

The requirement for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2011, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the panel action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:

Backup Proposal 13-167

13-167 Log #13 NEC-P13
(708.10(C)(2))

Note: This Proposal appeared as Comment 13-179 (Log #1641) which was held from the A2010 ROC on Proposal 13-273. The Recommendation on Proposal 13-273 was: Revise Text as follows: 708.10(C)(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating when installed in accordance with the listing requirement
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 24 hour
(3) Be embedded in not less than 50 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2 hour fire rating
(4) Be a cable listed to maintain circuit integrity for not less than 1 hour when encased in 50 mm (2 in.) of concrete

Submitter: Technical Correlating Committee on National Electrical Code®,
Recommendation: The Technical Correlating Committee directs that this comment be reported as “Hold” as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equal to a 2 hour fire-rating has not had public review.
Substantiation: This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept in Principle
Revise 708.10(C)(2) to read as follows:
(1) no change.
Informational Note: no change.
(2) Be protected by a listed fire-rated assembly, consisting of gypsum wallboard, concrete or other material that has a minimum fire rating of 2 hours (2)
(3) Be encased in a minimum 50mm (2 in.) of concrete.
Panel Statement: CMP-13 agrees with the submitter that there is no evidence that 2 in. of concrete will attain a 2-hr fire rating. The language is consistent with language throughout the NFPA standards pertaining to construction requirements.
Number Eligible to Vote: 18
Ballot Results: Affirmative: 17 Negative: 1
Explanation of Negative:

13-102a Log #CC1304 NEC-P13
(708.10(C)(2))

Recommendation: Revise the action on Proposal 13-167 as follows:
(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:
(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating
Informational Note: UL guide information for electrical circuit protection systems (FHIT) contains information on proper installation requirements to maintain the fire rating.
(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours
(3) Be encased in a minimum 100 mm (4 in.) of concrete
(4) Be installed under not less than 50 mm (2 in.) of concrete on grade
Substantiation: The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable.
Panel Meeting Action: Accept
Number Eligible to Vote: 21
Ballot Results: Affirmative: 17 Negative: 4
Explanation of Negative:
CZARNECKI, N.: The allowance for 2” concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no substantiation has been provided to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building code does allow control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2” concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)(d), not necessarily their equivalency.

13-72 Log #1473 NEC-P13
(700.9(D)(1))

Submitter: John R. Kovacik, UL LLC
Comment on Proposal No: 13-101
Substantiation: There were no incidents cited or problems identified that justify the removal of this requirement. The 2 in of concrete is a long-standing requirement that has a history and proven track record of providing adequate fire protection for conductors.

The added requirement that concrete or other material be listed to achieve a minimum fire rating is impractical for concrete. UL does not test concrete alone, a fire rating and such a program would be difficult if not impossible to develop based on the variables involved in preparation, finishing, curing, treating, etc.

The proponents of this proposal have argued that 2 in. of concrete does not equate to 2 hours of fire protection on the basis that the 2 in. concrete requirement was in the NFPA 20 Fire Pump Standard when the required fire rating for conductors was 1 hour, and the 2 in. concrete requirement was unchanged when the fire rating for conductors was increased to 2 hours. The 2 in. of concrete has never been claimed to provide a specific time-sensitive fire rating or been considered to equate to a specific fire rating. It is an alternative method of protection for conductors and its removal from the NEC will cause a hardship in that it will force installers to use protection methods that may not be superior to 2 in. of concrete.

Panel Meeting Action: Reject
Panel Statement: See 13-75a (Log #CC1303).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: While temperature performance issues have been identified with 2” of concrete, it is not clear that they will be resolved with 4” concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2” of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4” of concrete.
Referenced Proposal 13-68

Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows:

695.6(B) Circuit Conductors. Fire pump supply conductors on the load side of the final disconnecting means and overcurrent device(s) permitted by 695.4(B) shall be kept entirely independent of all other wiring. They shall supply only loads that are directly associated with the fire pump system, and they shall be protected to resist potential damage by fire, structural failure, or operational accident. They shall be permitted to be routed through a building(s) using one of the following methods:

(1) Be encased in a minimum 50 mm (2 in.) of concrete with a sufficient thickness to achieve a minimum 2-hour fire rating.
(2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(d) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:

(1) Be encased in a minimum 50 mm (2 in.) of concrete.
(2) Be installed under not less than 50 mm (2 in.) of concrete on grade.
(3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating.

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Referenced Proposal 13-67

Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows:

695.6(A)(2)(d)(1) 
Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(1) Be protected by a fire-rated assembly consisting of 2-inch wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).
(2) Be protected by a listed electrical circuit protective system with a minimum 2-hour fire rating.

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Referenced Proposal 13-67

Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows:

695.6(A)(2)(d)(1) 
Exception: The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 1-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(1) Be protected by a fire-rated assembly consisting of 2-inch wallboard, concrete or other material listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s).
(2) Be protected by a listed electrical circuit protective system with a minimum 2-hour fire rating.

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.
Ballot Results: Affirmative: 17 Negative: 1

Explanation of Negative:
ODE, M.: The Proposal did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. UL does not list concrete by itself for a fire rating so any UL fire rated assembly would involve a complete assembly of building materials, often including concrete and other materials. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.
13-101 Log #961 NEC-P13
(708.10(C))

**Final Action:** Reject

**Submitter:** William A. Wolfe, Steel Tube Institute

**Comment on Proposal No:** 13-167

**Recommendation:** Reject this proposal and retain the text in 2011 NEC.

**Substantiation:** This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The proponents for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012 ILC removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

**Panel Meeting Action:** Reject

**Panel Statement:** See the panel action and substantiation on 13-102a (Log #CC1304).

**Number Eligible to Vote:** 21

**Ballot Results:** Affirmative: 18 Negative: 3

**Explanation of Negative:**


DEGNAN, J.: See my statement on comment 13-46.

**Backup Proposal 13-167**

13-167 Log #13 NEC-P13
(708.10(C)(2))

**Final Action:** Accept in Principle

**Note:** This Proposal appeared as Comment 13-179 (Log #1641) which was held from the A2010 ROC on Proposal 13-273. The Recommendation on Proposal 13-273 was: Revise Text as follows:

708.10(C)(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:

(1) Be listed as a listed electrical circuit protective system with a minimum 2-hour fire rating when installed in accordance with the listing requirement

(2) Be protected by a listed fire-rated assembly listed to achieve a minimum fire rating of 2 hours

(3) Be embedded in not less than 50 mm (2 in.) of concrete with sufficient thickness to achieve a minimum 2 hour fire rating

(4) Be a cable listed to maintain circuit integrity for not less than 4 hours when installed in accordance with the listing requirement

**Submitter:** Technical Correlating Committee on National Electrical Code.

**Recommendation:** The Technical Correlating Committee directs that this comment be reported as "Hold" as it introduces new material and is not in accordance with 4.4.6.2.2 of the NFPA Regulations Governing Committee Projects.

The concept of 4 inches of concrete equated to a 2 hour fire-rating has not had public review.

**Substantiation:** This is a direction from the Technical Correlating Committee on National Electrical Code Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

**Panel Meeting Action:** Accept in Principle

Revise 708.10(C)(2) to read as follows:

(1) no change.

Informational Note: no change.

(2) Be protected by a listed fire-rated assembly, consisting of gypsum wallboard, concrete or other material that has a minimum fire rating of 2 hours

(3) Be embedded in a minimum 50mm (2 in.) of concrete.

**Panel Statement:** CMP-13 agrees with the submitter that there is no evidence that 2 in. of concrete will attain a 2 hr fire rating. The language is consistent with language throughout the NFPA standards pertaining to construction requirements.

**Number Eligible to Vote:** 18

**Ballot Results:** Affirmative: 17 Negative: 1

**Explanation of Negative:**


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13-102a Log #CC1304 NEC-P13
(708.10(C)(2))

**Final Action:** Accept

**Submitter:** Code-Making Panel 13, Comment on Proposal No: 13-167

**Recommendation:** Revise the action on Proposal 13-167 as follows:

(2) Fire Protection for Feeders. Feeders shall meet one of the following conditions:

(1) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protection systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(2) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours

(3) Be installed in a minimum 100 mm (4 in.) of concrete

(4) Be installed under not less than 50 mm (2 in.) of concrete on grade

**Substantiation:** The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete that was released during the 2011 cycle. The committee considers the 4 inch concept to be enforceable.

**Panel Meeting Action:** Accept

**Number Eligible to Vote:** 21

**Ballot Results:** Affirmative: 17 Negative: 4

**Explanation of Negative:**

CZARNECKI, N.: The allowance for 2" concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no substantiation has been provided to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building Code does allow control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2" concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2d), not necessarily their equivalency.


DEGNAN, J.: See my statement on comment 13-46.

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13-72 Log #1473 NEC-P13
(700.9(D)(1))

**Final Action:** Reject

**Submitter:** John R. Kovacik, UL LLC

**Comment on Proposal No:** 13-101


**Substantiation:** There were no incidents cited or problems identified that justify the removal of this requirement. The 2 in of concrete is a long-standing requirement that has a history and known track record of providing adequate fire protection for conductors.

The added requirement that concrete or other material be listed to achieve a minimum fire rating is impractical for concrete. UL does not test concrete alone, a fire rating and such a program would be difficult if not impossible to develop based on the variables involved in preparation, finishing, curing, treating, etc.

The proponents of this proposal have argued that 2 in of concrete does not equate to 2 hours of fire protection on the basis that the 2 in. concrete requirement was in the NFPA 20 Fire Pump Standard when the required fire rating for conductors was 1 hour, and the 2 in. concrete requirement was left unchanged when the fire rating for conductors was increased to 2 hours. The 2 in. of concrete has never been claimed to provide a specific time-sensitive fire rating or been considered to equate to a specific fire rating. It is an alternative method of protection for conductors and its removal from the NEC will cause a hardship in that it will force installers to use protection methods that may not be superior to 2 in. of concrete.

**Panel Meeting Action:** Reject

**Panel Statement:** See 13-75a (Log #CC1303).

**Number Eligible to Vote:** 21

**Ballot Results:** Affirmative: 18 Negative: 3

**Explanation of Negative:**

DEGNAN, J.: While temperature performance issues have been identified as a hardship in that it will force installers to use protection methods that may not be superior to 2 in. of concrete, there are no incidents cited or problems identified that justify the removal of this requirement.

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July 22, 2013

Supplemental Agenda July 29-August 1, 2013

Page 776 of 1861
Panel Meeting Action: Accept in Principle

Referenced Proposal 13-68

Note: This Proposal appeared as Comment 13-102 (Log #1642) which was held from the A2010 ROC on Proposal 13-102. The Recommendation on Proposal 13-102 was: Revise text to read as follows:

13-68 Log #10 NEC-P13 Final Action: Accept in Principle (695.6(B))

Ballot Results: Affirmative: 16 Negative: 2

Explanation of Negative:

ODE, M.: While test data shows that 2" of concrete fails to protect when subjected to a fire for 2 hours, fire isn’t the only consideration. In some egress scenarios, concrete encasement may offer physical protection that would prove more valuable than a system only designed for 2 hours fire.

Ballot Results: Affirmative: 17 Negative: 1

Explanation of Negative:
ODE, M.: The Proposal did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. UL does not list concrete by itself for a fire rating so any UL fire rated assembly would involve a complete assembly of building materials, often including concrete and other materials. There are many different factors that can affect heat transfer, other than the thickness of concrete. Prestressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.
on the floor? Seeing no one at the mics,
Mr. Johnston.

MR. JOHNSTON: I have no additional comments,
Mr. Chair.

MR. BELL: All right. With that, we'll move to
the motion on the floor which is to accept
Comment 13-76. Press 1 if you're in favor of the
motion, and press 2 if you're against the motion.
Vote now. 5 seconds.

Voting is closed. Motion passes.

With that, we're not going to entertain a
motion on 70-30. So we're going to skip to 70-31.

MS. THOMPSON: Elaine Thompson, representing
Steel Tube Institute. I move to accept
Comment 13-101.

MR. BELL: The motion on the floor is to accept
Comment 13-101. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MS. THOMPSON: Again, this is the same type of
issue we've just been debating for quite some time
now except this is in Article 708, Critical
Operations Power Systems, and it has to do with
708.10(C)(2), Fire Protection for Feeders. And
again I will stand by my previous remarks and ask
that the provision for the allowance of 2 inches of
concrete be retained in the Code and that you
accept this comment.
MR. BELL: Okay. Thank you. Again, this is another one of those situations where if this motion passes, we will not entertain a motion on

Motion Sequence Numbers 70-33 and 70-34 because it would render it moot. If you want to discuss the merits of those motions, you can do it during this debate. Mr. Johnston?

MR. JOHNSTON: Thank you, Mr. Chair. Once again, I would like to defer to Interim Chair Panel 13, John Kovacik, please.

MR. KOVACIK: Thank you, Michael. I am John Kovacik, Underwriters Laboratories, Interim Chair of Panel 13, speaking on behalf of Code-Making Panel 13 against the motion on the floor.

Again, this is the same issue we've been discussing. Nothing new to add. The only difference here is this particular motion affects Article 708 which is on critical operations power systems, and I would add that the Committee does not consider this Article to be any more important or any less important than the other articles that we've discussed with regards to this issue.

So I ask the body to support the position of the panel which, again, was a compromise and vote against the motion on the floor. Thank you.

MR. BELL: Thank you. Microphone 3.
MR. NASBY: Jim Nasby again. Thank you again.

Article 708, as everyone probably knows, is fairly new, and John Kovacik, in fact, was a major factor in getting that put in place. And it's certainly not adopted every place. It's in the process of being adopted in various jurisdictions depending on which city has what issue of the Code they're enforcing at the moment.

Therefore, I don't think we should try to make the requirements here any more onerous than we have to. And, again, in the absence of any indication that there's a problem with the 2 inches of concrete, I'm requesting that we stay with the existing requirement.

And, again, UL submitted a number of comments objecting to the change, 4 inches; and, again, as they pointed out in their substantiation, I don't want to read all of it, but if anyone would take a look at their substantiation, it is clear again that trying to draw correlation with hours and inches is just something that does not technically or mathematically makes sense without individual testing. Thank you.

MR. BELL: Thank you. Any further discussion?

Mr. Johnston?

MR. JOHNSTON: I have no additional comments, Mr. Chair.
MR. BELL: With that, we'll move to the motion on the floor which is to accept Comment 13-101.

Press 1 if you're in favor of the motion, and press 2 if you oppose the motion. Vote now. 5 seconds.

Voting is closed. Motion passes.

With that, we'll skip over to 70-35.

We're looking for a motion on Sequence Number 70-35. Microphone 3.

MR. HIRSCHLER: Marcelo Hirschler, GBH International, and proponent of -- I accept Comment 14-5. Give me a minute, please. I'm trying to find my place.

MR. BELL: Okay.

MR. HIRSCHLER: I apologize for making you wait. This addresses this --

MR. BELL: So your motion on the floor is to accept Comment --

MR. HIRSCHLER: Accept Comment 14-5.

MR. BELL: The motion on the floor is to accept Comment 14-5. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MR. HIRSCHLER: Thank you. What this is is to take the definition of combustible dust that is in our Standard 499 which is a generic definition. Standard 499 is the Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical...
AMENDMENT (70-31)

**Document:** NFPA 70, *National Electrical Code*

**Motion:** To Accept Comment 13-101 and thereby Reject Proposal 13-167

**CC FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment *HAS* achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 \( [12 \text{ (eligible to vote)} - 0 \text{ (ballots not returned)} - 0 \text{ (abstention)} = 12 \times 0.75 = 9] \)

<table>
<thead>
<tr>
<th>12 Eligible to Vote</th>
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<tr>
<td>0 Not Returned</td>
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</table>

  - 0 Yes correlation issues
  - 12 No correlation issues
  - 0 Abstain

**CC Action:** PASS

**CMP 13 FINAL Ballot Results**

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment *HAS NOT* achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 12 \( [20 \text{ (eligible to vote)} - 2 \text{ (ballots not returned)} - 0 \text{ (abstentions)} = 18 \times 0.66 = 11.88] \)

<table>
<thead>
<tr>
<th>20 Eligible to Vote</th>
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<td>2 Not Returned (Spina, Tobias, Jr.)</td>
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</table>

  - 9 Agree
  - 9 Do Not Agree (Adams, Brown, Constantine, Currin, Jr., Froemming, Keenan, Little, Neeser, White)
  - 0 Abstain

**CMP Action:** FAIL
Ms. Linda Fuller
Manager, Codes and Standards Administration
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169

Subject: Certified Amending Motions 70-26, 70-27, 70-29 & 70-31

Dear Ms. Fuller,

I would like the opportunity to speak at the Standards Council meeting on behalf of action taken on CAM 70-26, 70-27, 70-29 & 70-31. This motions should have been withdrawn after CAM 70-23 and 70-24 were defeated at the June 13, 2013 Technical Session. The CAM's referenced above all address the same issue, 2 inches of concrete vs 4 inches of concrete. Although, these CAM's affected different sections the issues was the same, 2 inches of concrete. This is apparent by looking at the comments that address this issue. The negative comments for 13-47, 13-49, 13-54, 13-59, 13-62, 13-76, 13-86, 13-101, 13-102, 13-104 & 13-105 all refer back to either 13-46 or 13-72.

Additionally, comment 13-75a made other changes than the concrete issue and none of these changes were discussed by the submitters or the CAM but the action taken at the Technical Session could undo the committees work.

Sincerely,

James Conrad
Report on Comments – June 2013

13-46 Log #558 NEC-P13
(695.6(A)(2)(d)(1))

Final Action: Accept in Principle

Submitter: Richard E. Loyd, Sun Lakes, AZ
Comment on Proposal No: 13-68
Recommendation: Reconsider and retain (1) be encased in 50mm (2 inches) of concrete.
Substantiation: I agree with Degnan and Ode’s comments on their negative voting.

This requirement has been in the code continuously since Article 695 first appeared in the NEC. The submitter is in error as the 2 hour fire rating being discussed was never a condition for using 695.6(A)(2)(d)(1). The committee’s substantiation is also in error in comparing the 2 inches of concrete with a 2 hr fire rating.

There has been no substantiation to remove this useful condition of use, nor has there been any substantiation submitted that it compromises the safety of the building or that it has ever failed to provide protection during an actual fire.

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(d) Inside of a Building. Where routed through a building, the conductors shall be installed using one of the following methods:

(1) Be encased in a minimum 50 mm (2 in.) of concrete
(2) Be installed under not less than 50 mm (2 in.) of concrete on grade
(2') Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s)
(3d) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

Exception to (A)(2)(d): The supply conductors located in the electrical equipment room where they originate and in the fire pump room shall not be required to have the minimum 2-hour fire separation or fire resistance rating, unless otherwise required by 700.10(D) of this Code.

Panel Statement: The committee acknowledges that 2 in. of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 in. of concrete concept that was submitted during the 2011 cycle.

Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:

DEGNAN, J.: The submitter commented in support of retaining the 2” of concrete that is in the 2011 code, the panel’s action to double the distance is not accepting the principle of the submitter’s proposal, it is completely changing the submitter’s intent.

While temperature performance issues have been identified with 2” of concrete, it is not clear that they will be resolved with 4” concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2” of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4” of concrete.

ODE, M.: I agree with negative votes of Mr. Degnan and Mr. Spina. The Comment did not provide any technical substantiation for the change from 2 inches of concrete in the existing NEC text to 4 inches of concrete. There are many different factors that can affect heat transfer, other than the thickness of concrete. Pre-stressed concrete has a different heat transfer ratio than lightweight concrete, steel reinforcement within concrete will affect heat transfer, and the type of aggregate used within the concrete will also affect heat transfer. The NFPA Fire Protection Handbook states the following: “Reinforcing steel can also affect the amount of heat transfer that can occur within the concrete floor or wall.” Concrete has a low thermal conductivity and a low thermal capacity. One of the more significant factors in determining the thermal characteristics of reinforced concrete is the type of aggregate used in the concrete and can vary throughout the United States. Concrete in direct contact with earth will have a different heat transfer than concrete installed as a wall or floor ceiling installation for multiple floor locations. Moisture content of the concrete will affect heat transfer. Furthermore, lightweight concrete has much different heat transfer rates than regular, reinforced, or pre-stressed concrete. The submitter could have provided a Fact Finding Study on the different types of concrete that could be used, the recommended thickness, and addressed the variables with the amount of heat transfer for each
application so the Panel could act on the technical merits for this change, rather than just guessing at a depth of concrete. The 2-inch concrete thickness has been used for many NEC cycles to provide physical protection with some limited protection from heat transfer and should not be changed without proper technical substantiation for this change.

SPINA, M.: No technical substantiation of any safety concerns or evidence of failures has been provided to change the 2-inch requirement which has been part of the NEC for many cycles. Many factors play into the ability of concrete to transfer heat therefore any simple prescriptive requirement for a thickness does not guarantee any fire rating and is somewhat arbitrary. Furthermore, absolutely no technical substantiation was provided which supports the panel's assertion that conductors installed in conduits under a concrete slab on grade can be considered to have a 2-hour fire rating. The 2-inch requirement should remain intact until such time that a thorough study on the topic be performed and sound technical substantiation can accompany a proposal to change this time honored requirement.
13-47 Log #956 NEC-P13 (695.6(A)(2)(d)(1))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-67
Recommendation: Reject the proposal and retain the text in the 2011 NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 NEC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2012 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on comment 13-46.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
Submitter: James S. Nasby, Skokie, IL

Comment on Proposal No: 13-67

Recommendation: Reject this proposal.

Substantiation: I agree with the negative vote comments by M. Ode. Also, the 2” concrete requirement appears over a dozen times in NFPA-70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2” conduit installation; plus twice the floor area. This would be even more horrendous on retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 13-46.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 18 Negative: 3

Explanation of Negative:

DEGNAN, J.: See my statement on comment 13-46.
Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL

Comment on Proposal No: 13-68

Recommendation: Do not remove the option of 2 in. of concrete. Do not delete said text.

Substantiation: I agree with the negative vote comment by J. Degnan. Further, also, 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many additions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3-1/2 conduit installation: plus twice the floor area. This would be even more horrendous on retrofit installations. While I didn't agree with increasing the requirements for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Accept in Principle

Panel Statement: See the panel action and statement on comment 13-46. CMP 13 does not agree with the submitter's substantiation.

Number Eligible to Vote: 21

Ballot Results: Affirmative: 19 Negative: 2

Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-59 Log #958 NEC-P13 Final Action: Reject
(695.14(F))

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-85
Recommendation: Reject the proposal and retain 2011 NEC text.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states in his similar proposal to 13-67 that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a “listed” concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See 13-58a (Log #CC1302).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-62 Log #959 NEC-P13
(695.14(F)(1))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-86
Recommendation: Reject this proposal and retain the text in 2011 NEC.

Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2 hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: See 13-58a (Log #CC1302).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 19 Negative: 2
Explanation of Negative:
DEGNAN, J.: See my statement on comment 13-46.
13-72     Log #1473  NEC-P13 (700.9(D)(1))

Final Action: Reject

Submitter: John R. Kovacik, UL LLC
Comment on Proposal No: 13-101

Substantiation: There were no incidents cited or problems identified that justify the removal of this requirement. The 2 in. of concrete is a long-standing requirement that has a history and proven track record of providing adequate fire protection for conductors.

The added requirement that concrete or other material be listed to achieve a minimum fire rating is impractical for concrete. UL does not test concrete alone for a fire rating and such a program would be difficult if not impossible to develop based on the variables involved in preparation, finishing, curing, treating, etc.

The proponents of this proposal have argued that 2 in. of concrete does not equate to 2 hours of fire protection on the basis that the 2 in. concrete requirement was in the NFPA 20 Fire Pump Standard when the required fire rating for conductors was 1 hour, and the 2 in. concrete requirement was left unchanged when the fire rating for conductors was increased to 2 hours. The 2 in. of concrete has never been claimed to provide a specific time-sensitive fire rating or been considered to equate to a specific fire rating. It is an alternative method of protection for conductors and its removal from the NEC will cause a hardship in that it will force installers to use protection methods that may not be superior to 2 in. of concrete.

Panel Meeting Action: Reject
Panel Statement: See 13-75a (Log #CC1303).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
DEGNAN, J.: While temperature performance issues have been identified with 2" of concrete, it is not clear that they will be resolved with 4" concrete. If the panel changes the code they should be able to cite field performance data that substantiates that 2" of concrete has resulted in loss of life in a statistically significant number of building fires, and that this will be corrected by extension to 4" of concrete.

Revise the action on Proposal 13-101 as follows:

(1) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:

(1) Be installed in spaces or areas that are fully protected by an approved automatic fire suppression system

(2) Be a listed electrical circuit protective system with a minimum 2-hour fire rating

Informational Note: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

(3) Be protected by a listed thermal barrier system for electrical system components with a minimum 2-hour fire rating

(4) Be encased in a minimum 50 mm (2 in.) of concrete

(5) Be installed under not less than 50 mm (2 in.) of concrete on grade

The committee acknowledges that 2 inches of concrete is not sufficient to provide 2 hours of fire rating for areas other than a slab on grade. The committee continues to accept the 4 inches of concrete concept that was submitted during the 2011 cycle. The committee considers the 4 inch concept to be enforceable. The recommendation includes the action taken on Proposal 13-109 for clarity.

Affirmative: 17  Negative: 4

CZARNECKI, N.: The allowance for 2” concrete encasement has been an acceptable method for providing protection for years in this section of the Code and no substantiation to show there is a problem with its use. Contrary to the substantiation in Proposal 13-68, Section 909.20.6.1 of the International Building code does allow control and power wiring to be encased in 2” of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The NEC has long allowed the use of 2” concrete as a viable alternative to other methods allowed and the 2011 NFPA Handbook describes the difference between the allowable methods in 695.6(A)(2)d, not necessarily their equivalency.


Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-109
Recommendation: Reject this proposal and retain text from 20 II NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between the "list equivalent" and the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistive Directory.

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

Panel Meeting Action: Reject
Panel Statement: Proposal 13-109 does not modify 700.10(D)(1)(5). See 13-75a (Log #CC1303).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-86  Log #1215  NEC-P13  (700.100(D)(1)(5))  Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-128
Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.
Substantiation: 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to two hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.
Panel Meeting Action: Accept in Principle
Panel Statement: See the action on 13-75a (Log #CC1303). CMP 13 does not agree with the submitter's substantiation.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18  Negative: 3
Explanation of Negative:
13-101 Log #961 NEC-P13
(708.10(C))

Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No: 13-167
Recommendation: Reject this proposal and retain the text in 2011 NEC.
Substantiation: This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Reject
Panel Statement: See the panel action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
13-102  Log #962  NEC-P13
(708.10(C))
Final Action: Reject

Submitter: William A. Wolfe, Steel Tube Institute
Comment on Proposal No:  13-168
Recommendation:  Reject this proposal and retain the text in 2011 NEC.
Substantiation:  This proposal removes the allowance for 2" of concrete which has for years been a recognized method of providing fire and mechanical protection for conductors. Sufficient substantiation for removing this long-held option was not provided. The submitter states that it is documented in the International Building Code (IBC) that 2 inches of concrete is not equivalent to 2-hr. fire protection. In fact, the 2012 IBC Section 909.20.6.1 (provided) allows control and power wiring to be encased in 2" of concrete as an alternative to the use of 2 hour rated cable, fire barriers, etc. The IBC does not require a "listed" concrete assembly.

The permission for concrete encasement should also be retained in the NEC as a viable alternative to the other methods listed. The NEC 2011 Handbook describes the difference between - not equivalency of - the other 2 methods allowed in 695.6(A)(2)(d): a 2-hour fire rating of an electrical circuit and a 2-hour fire-resistance rating of a structural member, such as a wall. In September 2012, UL removed several Electrical Circuit Protective Systems as allowed in 695.6(A)(2)(d)(3) from the UL Fire Resistant Directory.

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

Panel Meeting Action:  Reject
Panel Statement:  See the action and substantiation on 13-102a (Log #CC1304).
Number Eligible to Vote:  21
Ballot Results:  Affirmative: 18  Negative: 3
Explanation of Negative:
13-104   Log #1216  NEC-P13  
(708.10(C)(2))  
Final Action: Accept in Principle  

Submitter: James S. Nasby, Skokie, IL  
Comment on Proposal No: 13-167  
Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.  
Substantiation: 2" concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2" conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.  
Panel Meeting Action: Accept in Principle  
Panel Statement: See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter's substantiation.  
Number Eligible to Vote: 21  
Ballot Results: Affirmative: 18 Negative: 3  
Explanation of Negative:  
13-105 Log #1217 NEC-P13
(708.10(C)(2)(3))

Final Action: Accept in Principle

Submitter: James S. Nasby, Skokie, IL
Comment on Proposal No: 13-168
Recommendation: Do NOT remove the option of using 2 in. of concrete. E.g., Do not delete said text.
Substantiation: 2” concrete requirement appears over a dozen times in NFPA 70 and has been as such for many editions. No problem or difficulty was offered for changing this requirement. No cost-benefit data was given. This is a very onerous requirement. This would require 280% more concrete for a 3 1/2” conduit installation; plus twice the floor area. This would be even more horrendous no retrofit installations. While I did agree with increasing the requirement for wire protective systems from one hour to tow hours, this requirement does not correlate with how much concrete is equivalent. This also invalidates almost all UL Listed wiring systems.

Panel Meeting Action: Accept in Principle
Panel Statement: See the action and substantiation on 13-102a (Log #CC1304). CMP 13 does not agree with the submitter’s substantiation.
Number Eligible to Vote: 21
Ballot Results: Affirmative: 18 Negative: 3
Explanation of Negative:
## Floor Action on Certified Amending Motions
### Documents for the June 2013 Association Technical Meeting

**Document #7**  
**Panel 13**  
**NFPA 70, National Electric Code® A2013**  
*(continued)*

<table>
<thead>
<tr>
<th>Motion Seq #</th>
<th>NITMAM Log #</th>
<th>Time</th>
<th>Section/Para</th>
<th>Person(s) Authorized to Make the Motion</th>
<th>Certified Amending Motion**</th>
<th>Floor Action</th>
</tr>
</thead>
</table>
| 70-31        | 1170         |      | 708.10(C)(2) | Elaine Thompson & Richard Loyd, Steel Tube Institute of North America  
†E. Thompson & R. Loyd are the Desig. Reps for W. Wolfe | Accept Comment 13-101 | PASSED 117-106 |
| 70-32        | 1171         |      | 708.10(C)(2) | Elaine Thompson & Richard Loyd, Steel Tube Institute of North America  
†E. Thompson & R. Loyd are the Desig. Reps for W. Wolfe | Accept Comment 13-102 | |
June 30, 2013  
27706 Dalton Bluff Ct.  
Katy, TX 77494

Standards Council  
National Fire Protection Association  
1 Batterymarch Park  
Quincy, Massachusetts 02169-7471

Sent by email ATTN: Secretary of Standards Council, Cronin, Amy acronin@nfpa.org

Subject: Appeal NITMAM/CAM Log 70-36

In accordance with Section 1.6.3 of the NFPA Regulations Governing Committee Projects, as the maker of the NITMAM/CAM, I am appealing NITMAM/CAM Log 70-36.

1) My Name: David Wechsler, American Chemistry Council (ACC), mailing address as shown above.  
I am the ACC Principal on NFPA 70 CMP-14 as well as the ACC Principal on NFAP EECA responsible for NFPA 497/499/496.

2) Statement: The NFPA Standard Council meeting on January, 1995 published action 95-6. From that time up until the start of this NEC cycle, it appeared from the presentation of Material Group information in both the NEC and in NFPA 497/499, that this decision was understood. For example NEC Article 500.7 (B)(1) contains the NEC designated Group E and the NFPA 499 extracted information defines this term with the NEC:

(1) **Group E.** Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, or other combustible dusts whose particle size, abrasiveness, and conductivity present similar hazards in the use of electrical equipment. [499:3.3.4.1]

We now seem to find ourselves in need of an interpretation from the Standards Council both with regard to the meaning of Action 95-6 as well as towards finding an appropriate method to comply with this Council direction to address the Code text proposed under this new NEC 506 section.

The office of the Secretary of the NFPA Standards Council provided us with a copy of this 95-6 ruling which is shown below (See page 4).

3) Argument: Applying our understanding of the Council 95-6 action we find that the Council directed that the NEC has the authority to establish structure. Hence the NEC would create a Material Group section as well as designate it, for example, ‘Group E’. The Technical Committee on Electrical Equipment in Chemical Atmospheres (EECA) would classify chemical hazards into
the appropriate categories. From this we can see the format reflected in the example in item 1 above.

In this NEC code cycle, action from CMP-14 produced a new article 506 for Zone Material Groups. This same action also resulted in populating these newly identified groups. Since its first appearance in the NEC in 2005, Article 506 has not had any Zone Material Groups for dusts identified. Additionally NFPA 499 also has not taken action to define Zone Material Groups for dusts, since this was viewed as a first action required by the NEC.

With due respect to the Chair of NEC CMP-14 we do not find support for the quotes contained in the NITMAM 70-36 transaction shown below and with the Council 95-6 text provided to us as indicated in item 1 above. If such a different copy exists we would like to be sent a copy to correct our records.

Extracted transcript CMP-14 Chair Mr. Jones:

14 The issues raised by the motion is the interpretation of the Standards Council January 1995, 95-6 ruling. Code-Making Panel 14 contends that it has a responsibility to establish group classifications, and the Technical Electrical Equipment in Chemical Atmospheres has the responsibility to populate these groups.

Page 176

21 The last paragraph of the April 12, 1995, decision of the Standards Council at the request of the Union Carbide Corporation regarding material classifications state, "The Council noted that the

206

1 National Electrical Code outlines the chemical atmospheres for each particular group as set forth by NFPA 497M and recognizes that these requirements are included in the National Electrical Code instead of simply referring to the NFPA 497M since it is necessary for the National Electrical Code to establish the groups in enforceable language. The Council also noted that the responsibility for establishing the groups originated in the National Electrical Code in 1937."

As the NFPA Standards Council is aware, there is a lot of work going on with respect to solid particulate materials/combustible dusts. NFPA has a new Code, NFPA 652 addressing fundamentals of combustible dusts in a draft review stage. As was pointed out in 1995 and still true today, an evaluation of dusts in terms of defining a hazardous classified location is more about the chemical aspects of the solid particulate ‘dust’ material, than it is an electrical issue. Since NEC Article 506 has been without Zone defined Material Dust Groups since it was placed into the NEC in 2005, we feel very strongly that more time is needed for ‘dust’ experts to properly address the dust hazards within the three groups now proposed by the NEC. We also
see a need to better understand how fibers and flyings addressed in the current NEC Article 503 should be addressed with other ‘dusts’ being considered in Article 506. These are significant issues which should be properly addressed.

4) Statement of relief: The Standard Council should direct that 1) the new Article 506.6 “Material Groups” be tabled, and 2) the NFPA 499 document be placed into a new cycle so that the responsible EECA Technical committee may properly address the establishment of Zone Material Dust Groups with full knowledge of those in the public sectors having an interest in the assessment of combustible dusts within hazardous classified locations.

5) A hearing on this appeal is requested.

Thank you.

David Wechsler
dbwechsler@att.net
Submittor: David Wechsler, American Chemical Council

Comment on Proposal No: 14-200a

Recommendation: Delete new 506.6 and renumber accordingly.

Substantiation: First the Committee under Log 14-111 stated that some language in a Product Standard belongs in a product standard and not an installation code, like the NEC. Claiming that product standards include a marking of the dust group, does not provide substantiation to reflect the basis for these specific defined terms in the NEC.

IEC and ISA use the terms “Group IIIC, IIIB and IIIA”. However these terms have different definitions. For example the IEC 60079-0 standard under paragraph 4.3 defines Group IIIC as: “conductive dust” and under 4.3.18.1.1 defines conductive dust as ‘combustible dust with electrical resistivity equal to or less than 103 ohm m.’ There also is a note: “Note: IEC 61241-2-2 contains the test method for determining the electrical resistivity of dusts,” which suggests that a simple replacement of the term ‘metal’ for ‘conductive’ may not reflect the same potential hazards.

The ISA 60079-0 draft standard under paragraph 4.3 contains Note 2, a US deviation from the IEC standard, which states: “The 2011 NEC does not recognize the identification of location or equipment as ‘Group IIIA, IIIB, or IIIC’, but identifies equipment suitable for Zone 20, 21 and 22 and no separate differentiation is made of combustible dusts or ignitable fibers.”

Lastly based upon the NFPA Standards Council, Jan. 1995, 95-6 ruling, it is the responsibility for group classification of materials to the Technical Committee on Electrical Equipment in Chemical Atmospheres (EECA) and not the NEC CMP-14. NFPA 499 which is under the EECA does not include these defined terms.

Panel Meeting Action: Reject

Panel Statement: The submitter’s interpretation of the NFPA Standards Council decision is not correct. It is the responsibility of CMP-14 to establish the Group classifications and it is the responsibility of the Technical Committee on Electrical Equipment in Chemical Atmospheres to populate those groups.

Final Action: Reject

Substantiation: Product standards include a marking of the dust group. Inclusion of the dust groups in Article 506 is necessary to properly select and apply the equipment currently manufactured.

Referenced Proposal 14-192a

14-192a Log #CP1412 NEC-P14 Final Action: Reject (506.2 Combustible Dust)

TCC Action: The Correlating Committee directs that this proposal be reported as “Reject” because less than two-thirds of the members eligible to vote have voted in the affirmative.

The Correlating Committee notes that the references to ASTM and ISO documents must be in the form of Informational Notes.

The NEC Style manual does not permit references to other documents in the body of the NEC.

Submittor: Code-Making Panel 14,

Recommendation: In 506.2 replace the current definition of Combustible Dust with the following:

Combustible Dust. Dust particles of 500 microns or smaller (material passing a U.S. No. 35 Standard Sieve as defined in ASTM E 11, Standard Specification for Wire Cloth and Sieves for Testing Purposes) are considered to present a dust fire or dust explosion hazard unless determined otherwise. (See ASTM E 1226 or ISO 6184/1).

Explanation of Negative:

GOODMAN, M.: The referenced standard NFPA 499 -2012 has not been used is not published yet.

KUCZKA, J.: See comment on negative to panel action on proposal 14-11a.


NEAGLE, J.: The document referenced in the substantiation, NFPA 499 -2012 has not been published.

Referenced Proposal 14-200a

14-200a Log #CP1417 NEC-P14 Final Action: Accept (506.6 New)

Submittor: Code-Making Panel 14,

Recommendation: Add a new 506.6 to read as follows:

506.6 Material Groups

For the purposes of testing, approval, and area classification, various air mixtures (not oxygen enriched) shall be grouped as required in Article 506.6(B)(1) and (C).

(A) Group IIIC Combustible metal dust

Informational Note 1 - Group IIIC is equivalent to Class II, Group E as described in 500.6(B)(1).

(B) Group IIIB Combustible metal dust other than combustible metal dust

Informational Note 2 - Group IIIB is equivalent to Class II, Group F and G as described in 500.6(B)(2) and 500.6(B)(3), respectively.

(C) Group IIIA Solid particles, including fibers, greater than 500 μm in nominal size which may be suspended in air and could settle out of the atmosphere under their own weight

Informational Note 3 - Group IIIA is equivalent to Class III.

Informational Note 4 - Examples of flyings include rayon, cotton (including cotton linters and cotton waste), sisal, jute, hemp, coco fiber, oakum, and baled waste kapok.

Renumber existing 506.6 Special Precaution as 506.7

Explanation of Negative:

GOODMAN, M.: The referenced standard NFPA 499 -2012 has not been published yet.

JONES, R.: NFPA 499 2012 Edition has not been published.

NEAGLE, J.: The document referenced in the substantiation, NFPA 499 -2012 has not been published.
2 if you're opposed. Vote now. 5 seconds.

Voting is now closed. Motion fails.

So we'll move on to Sequence Number 70-36.

Microphone 2 in anticipation.

MR. WECHSLER: David Wechsler, American Chemistry Council, speaking in support of 70-36, accept an identifiable part of Comment 14-56.

MR. BELL: So the motion on the floor is to accept an identifiable part of Comment 14-56, and that's indicated in the Motions Committee report, the identifiable part. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MR. WECHSLER: Thank you. David Wechsler, American Chemical Council.

As I mentioned earlier, some people wanted to talk about zone dust. 506 is the Article that deals with zone dust. Up to this point in time, there have been no material groups defined for zone dust in the either the National Electrical Code or NFPA 499.

Now there is a need to have material dust obviously because that's part of the classification. If you recall, classification deals with needing to look at the locations based upon hazards of materials. So this is a physical property, one of the materials that need to be looked at. It's not electrical. It's not an
electrical problem. It's a chemical problem. Now the Standards Council back in 1995 has ruled that there was a need to understand who's going to be responsible for chemicals and how this whole process within Article 500 would work. That was done on Item 95-6 back in January of 1995. What that statement said is that the Council, when the Council was formally asked to clarify the responsibility for group classifications, it concluded with the following statements, and I'm quoting from that rule, "The council voted that the National Electrical Code has the authority to establish structure. The Technical Committee on Electrical Equipment in Chemical Atmospheres would classify chemicals into appropriate categories. The criteria of area classification and chemical hazard category (group) is the basis for equipment, for equipment selection. The occupancy standards would address the need for particular classification within portions of their occupancy."

Now what does this mean in simple terms? In simple terms, it means that, one, the established C structures, the action taken by CMP 14 to create a new Article called Material Groups with an A Group III C, a B Group III C, and a C Group III A is action that's permitted and recommended by the Council. The classification of what goes into those groups, that belongs to a group that's more equipped looking at what dust
material hazards are, and that would be done by A, B, C, A or another group.

What I'm asking for is to follow, you, all the supporters, in moving forward with these following Standards Council actions to divide up this work so that we would proceed with getting appropriate groups defined under this Article where none have existed before.

I would point out that if this passes, I will have to have a follow-up motion that will be needed because there will be nothing in those groups as what I'm defining here. That's what will have to happen. Thank you.

MR. BELL: Thank you, Mr. Johnston?

MR. JOHNSTON: Thank you, Mr. Chair. Once again, I would like to defer to the Chair of NEC Code Panel 14, Mr. Robert Jones, please.

MR. JONES: Thank you, Mr. Johnston. I am Robert Jones with Independent Electrical Contractors, Chairman of Code Panel 14, and I speak against the motion.

The issues raised by the motion is the interpretation of the Standards Council January 1995, 95-6 ruling. Code-Making Panel 14 contends that it has a responsibility to establish group classifications, and the Technical Electrical Equipment in Chemical Atmospheres has the responsibility to populate these groups.
The last paragraph of the April 12, 1995, decision of the Standards Council at the request of the Union Carbide Corporation regarding material classifications state, "The Council noted that the National Electrical Code outlines the chemical atmospheres for each particular group as set forth by NFPA 497M and recognizes that these requirements are included in the National Electrical Code instead of simply referring to the NFPA 497M since it is necessary for the National Electrical Code to establish the groups in enforceable language. The Council also noted that the responsibility for establishing the groups originated in the National Electrical Code in 1937."

Also Mr. Wechsler's explanation of his negative vote on Comment 14-56 asked for the NEC Correlating Committee to address this issue. As of today, I haven't seen any action from the Correlating Committee on this request.

The vote on Comment 14-56 was 14 affirmative to reject and 1 negative with 15 eligible to vote.

MR. BELL: Thank you. Microphone 2.

MR. GUIDRY: Eddie Guidry, Fluor Enterprises, representing ABC. I stand in support of the motion by David Wechsler.

David is an expert in his field as far as this area, and I support his substantiation for his
argument and urge the group here to vote in his favor.

MR. BELL: Thank you. Any further discussion on the floor? Seeing no one at the mics, Mr. Johnston?

MR. JOHNSTON: I have no additional information.

MR. BELL: With that, we'll move to the motion on the floor which is to accept an identifiable part of Comment 14-56 as noted in the Motions Committee report. Press 1 if you're in favor of the motion and press 2 if you oppose the motion. Vote now. 5 seconds.

Voting is closed. Motion fails.

Move to the next sequence which is 70-37. Microphone 6.


MR. BELL: So the motion on the floor is to accept Proposal 15-62 as modified by the Technical Committee. Is there a second?

A VOICE: Second.
## Floor Action on Certified Amending Motions

Documents for the June 2013 Association Technical Meeting

<table>
<thead>
<tr>
<th>Motion Seq #</th>
<th>NITMAM Log #</th>
<th>Time</th>
<th>Section/Para</th>
<th>Person(s) Authorized to Make the Motion</th>
<th>Certified Amending Motion**</th>
<th>Floor Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>70-35</td>
<td>1158</td>
<td></td>
<td>500.2</td>
<td>Marcelo M. Hirschler, GBH International</td>
<td>Accept Comment 14-5</td>
<td>FAILED 37-179</td>
</tr>
<tr>
<td>70-36</td>
<td>1151</td>
<td></td>
<td>506.6 (New)</td>
<td>David Wechsler, American Chemistry Council</td>
<td>Accept an Identifiable Part of Comment 14-56. The identifiable part exists in Proposal 14-200a and is as follows: <strong>506.6 Material Groups.</strong> For the purposes of testing, approval, and area classification, various air mixtures (not oxygen enriched) shall be grouped as required in 506.6(A), (B), and (C). (A) Group IIIIC. Combustible metal dust. Informational Note: Group IIIIC is equivalent to Class II, Group E as described in 500.6.(B)(1).</td>
<td>FAILED 34-165</td>
</tr>
</tbody>
</table>
**Floor Action on Certified Amending Motions**  
Documents for the June 2013 Association Technical Meeting

<table>
<thead>
<tr>
<th>Motion Seq #</th>
<th>NITMAM Log #</th>
<th>Time</th>
<th>Section/Para</th>
<th>Person(s) Authorized to Make the Motion</th>
<th>Certified Amending Motion**</th>
<th>Floor Action</th>
</tr>
</thead>
</table>

(B) Group IIIB.  
Combustible dust—other than—combustible metal—dust.  
Informational Note:  
Group IIIB is equivalent to Class II, Groups F and G as described in (B)(2) and 500.6(B)(3), respectively.  

(C) Group IIIA.  
Solid particles—including fibers—greater than 500 µm in nominal size, which may be suspended in air and could settle out of the atmosphere under their own weight.  
Informational Note:  
Group IIIA is equivalent to Class III.  
Informational Note No. 2:  
Examples of flyings include rayon, cotton (including cotton linters and cotton waste), sisal, jute, hemp, cocoa fiber, oakum, and baled waste kapok.
NFPA 1124, Code for the Manufacture, Transportation, and Storage of Fireworks
NFPA 1410, Standard on Training for Initial Fire Attack
NFPA 1906, Standard for Wildland Fire Apparatus

The following documents were officially withdrawn:
NFPA 907(M), Manual for the Determination of Electrical Fire Causes

The following document was returned to committee:
NFPA 1125, Code for the Manufacture of Model Rocket Motors

95-6

In response to a complaint of D. Wechsler, Union Carbide, requesting that the Council clarify that responsibility for group classification of materials is assigned to the Technical Committee on Electrical Equipment in Chemical Atmospheres, the Council voted that the National Electrical Code has the authority to establish structure. The National Electrical Code defines the area classifications. The Technical Committee on Electrical Equipment in Chemical Atmospheres would classify chemical hazards into the appropriate categories. The criterion of area classification and chemical hazard category (group) is the basis for equipment selection. The occupancy standards would address the need for a particular classification within portions of their occupancies.

95-7

The Council considered the request of R. Bukowski, NIST, Chair of the Technical Committee on Household Fire Warning Equipment, that the Council remove the jurisdiction of NFPA 720, Standard for the Installation of Carbon Monoxide and Fuel Gas Detectors, from the jurisdiction of the National Fire Alarm Technical Correlating Committee.

In the complaint, the complainant argued that NFPA 720 is a separate and independent document from the National Fire Alarm Code, and that there is no reason for the document to be under the jurisdiction of the National Fire Alarm Code Technical Correlating Committee. Furthermore, the complainant argued that NFPA 720 should not be merged into the National Fire Alarm Code because it could wrongly confuse the public into thinking that CO detectors are suitable as fire detectors.
April 12, 1995, 1:30 P.M.

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Mr. Fleming: We'll proceed to our 1:30 p.m. hearing, which is Item No. 95-6. Mr. Wechsler is here with us from Union Carbide Corporation.

First of all, Mr. Wechsler, we would like to welcome you to the Standards Council.

Mr. Wechsler: Thank you.

Mr. Fleming: What we'll do is have the council members introduce themselves and then you may introduce yourself officially and make your statement regarding this item. Following your opening statement, we'll allow time for Council member questions. And you will note, of course, we do have a stenotypist making a transcripts of these proceedings.

Mr. Bernd, if you will?

Mr. Bernd: Bob Bernd, member of Council.

Mr. Belles: Don Belles, member of Council.

Mr. Drouin: Joseph Drouin, member of Council.

Mr. Taylor: Gary Taylor, member of Council.

Mr. Peterson: William Peterson, member of Council.
MS. NESBIT: Leona Nesbit, recording secretary.

MR. FLEMING: Russell Fleming, Chair.

MR. COTE: Arthur Cote, secretary to the Council.

MR. GRANT: Casey C. Grant, assistant to secretary to the Council.

MR. REED: Al Reed, member of Council.

MR. LAWRY: Ed Lawry, member of the Council.

MR. WHEELER: Stanley Wheeler, member of Council.

MR. MATTERN: James Mattern, member of Council.

MR. PARSON: Dave Parsons, member of Council.

MR. ERICKSON: Doug Erickson, member of Council.

MR. FLEMING: I think I will ask our guests to identify themselves for the record, please?

MR. SCHMIDT: Walter Schmidt, State Fire Marshal of West Virginia.

MR. DUNCAN: Sam Duncan. I am from the Department of Army.

MR. WECHSLER: I am Dave Wechsler. I am
with Union Carbide Corporation. I am a senior staff consultant engineer working with them. The issue that I am bringing before you, I am bringing it before you as a member.

MR. FLEMING: Okay. As a member of the goes Electrical Equipment and Chemical Atmosphere Committee, on which I represent the Chemical Manufacturers Association as the principal representative.

You may recall that during the early part the 96 code cycle, there was an issue raised and I wrote a letter to Art Cote addressing two concerns. The second concern was the issue of who is the responsible technical organization within NFPA to define the national electrical code NEC groups.

And you were, you met and you sent back a reply and that reply was not very clear to me. And it gave different responses from various members of the NFPA staff. As we discussed this further with members of NFPA staff, I was encouraged to try to come here today to explain this issue probably in a little more detail and to really get an understanding from you as to what our real needs are and what our objectives are. I have copies of handouts which will supplement the information that I have given you and, if I can, I would like to just walk you through these things, if that's
okay.

Can you all see that pretty well? This is the first page of the letter that I have given you called supplemental information. The issue that we are looking at is which NFPA technical body should define NE Groups? And, secondly, which NFPA technical body should define what materials should be placed in what groups, or put another way, who is responsible for the definition of the NEC Article 500 Groups?

The desired response is, what I would like to see from you all today is, the Panel 14 of the National Electric Company is responsible for class and division definitions and for the establishment of the 7-A, B, C, D, E, F, and G Groups. And that the Electrical Equipment and Chemical Atmospheres Group is responsible for defining the National Electrical Code groups, as well as the chemicals, compounds, and other materials, that may reside in each of those groups. And that that Group's also responsible for resolving issues due to introduction of other types of classifications, designations, and that may eventually become part the National Electrical Code at some future date.

To understand this process, we can go back a number of years, what I thought would be worth doing, is going back to pre-1971 and looking at what the National
Electrical Code looked like at that time.

This is from the 1968 National Electrical Code. This print is small. You will have to forgive me. It's not easy getting copies of this anymore and they're somewhat collectors' items for those of us who work with these things on a routine basis.

But you can see right here the groups we're talking about is Group A, B, Group C, and Group D. If you read these wordings here, these words say for atmospheres containing acetylene, a number of the chemicals down here are not really chemicals. They're mixtures. And so, inherent with this term here, there's some inaccuracies, say, for example, benzine is a mixture, and we now know it. As a matter of fact, that is a mixture. There are some other things. So, that's not technically correct where it was.

Is this a time line? And I don't -- I just want to run through them very quickly simply to say that in 1971 there's some major changes that were implemented by the National Electrical Code which changed in certain respects how things were considered.

Instead of moving it, looking at materials, they began looking at auto emission temperatures and defined things under that way.

In June of 1976, Underwriters Laboratories
were working on behalf of the Chemical Manufacturers Association, API, and some others, and went through and did a research study published under UL Laboratories Research Papers 58 and 58A. That dealt with classification of materials and twenty materials were selected and were grouped.

The second attachment there shows the results of what that work did. If you notice, there are some new headings here and we have transitioned from 68 to 78 here. You can see that we now have for Groups C a table. We now have a marking. We now have temperature requirements, which is different from what we had before, and we have replaced definitions with which, with which Table 500 to a much longer, lengthy table of listings of various chemicals and what was going on.

In 1978, that's where, the way it was in 1978-79. There was another group working through the national academy called the National Materials Advisory Board, NMAB. They went through another round of study to come up with a listing of how we should define, classify, not only flammable liquids and combustibles, but also dust. They published a listing and in 1980 this thing seemed to have gotten so far afield that the technical committee on electrical equipment and chemical and atmospheres, this was the group that we're now
talking about, EECA, recommended to the NFPA that they
remove that listing and that the EECA then proceed to
develop another document that would define for once and
for all the various gases, vapors for the classification
lists, review the NMAB-recommend additions, and publish
what was considered to be a technically correct document
from the standpoint of what chemical it was and what was
going on with chemicals.

When that was done, the document called NFPA
497-M was developed, and that was the first year it came
out, in 1981.

The 1984 National Electrical Code,
responding to that condition, came back and says, all
right. This is the way it now looks. We now have fine-
print notes in saying there’s no longer a definition in
the National Electrical Code. The actual groups are now
defined in 497-M. You can see down here, the fine print
note, Group A, Atmosphere containing acetylene, this
seemed to go along fairly well until we start coming in
around 1984. Transitioning to 1984, when some things
started happening again.

And in the 1993 code, low and behold, look
what we now have? We have conditions where Group A is
defined as a chemical containing acetylene.

Now, the problem that happens is that can be
taken as a literal meaning that says the only things you can have in Group A are acetylenes. In the 1996 code cycle, when the issue of the Zones zero concept, and some of you may or may not be familiar with that, but I don't want to go into that as a tangent, there was a proposal entered to make carbon disulfide a Group A material, and we interacted with the Code Panel 14 to say that's not a good idea and, nevertheless, there was a proposal to make that in there.

The problem you have is you have got all these definitions, but the, really, the reality of the situation is, what does a Group A material constitute? Who is going to make that determination? Is it going to be the Panel 14 electrical people? Or is it going to be the EECA, which is composed of electrical-chemical people who have, were initially charged, in my understanding, of doing this work? And, now, we're coming to an area where we have, we started from and we're going back to the same groups.

So, the reason I am here is I would like the Standards Council to address this specific issue once and for all and tell us who is supposed to do what. This will impact us long-term, because, as we work toward a more worldwide approach, there are other classifications systems out there and somebody's got to
sit down and figure out what to do with all these materials.

This is the desired response that I read to you earlier that I am looking for. In my estimation, this is what the, really, the intent is what we expect to have happen. We expect Panel 14 of the National Electrical Code to be responsible for defining class and divisions and we expect that they will have already gone through and defined the groups which are existing groups.

We expect that the EECA panel will be given the legitimate responsibility or turf to say that we're going to be the ones that are going to be responsible, for example, so we can come back and say what is a Group D material? What is a Group B material? And that's what I am asking for.

I hope that this walk-through has given you an appreciation of what we are talking about and why we are trying to do what we have done. We cannot continue to work under this recycle and have one part NFPA technical group and another matter of another technical group and continue to do battle over these issues. There has to be a lead with somebody taking up the responsibility.

Thank you.

SANDRA WENGER, RPR
(412) 261-6254
MR. FLEMING: Thank you. Questions from
Council members?

MR. COTE: Council secretary has a question.

Art Cote, secretary to the Council.

It seems to me that, that there is not a lot
of disagreement about the question the way you phrased
it and the answer that you have given.

But it seems to me there may be a question
that's left you know answered. You have said your
desired response that would be Panel 14 of the National
Electrical Code would be for the would be responsible
for the class an definitions and for establishment of
the seven groups.

Does that mean that if there were a desire
to create another division, another class, or another
group, that that would reside with Panel 14? And that
the EECA Committee would be responsible for determining
what chemicals or compounds fit into those groups? I
mean, --

MR. WECHSLER: As I understand your
question, yes. The EECA would be responsible for -- if
you could think of the groups as being mailboxes? The
Panel 14 would build the mailboxes, but it would be the
EECA Committee who would decide what goes into each of
those mailboxes. And if the Panel 14 decided they
needed additional mailboxes, then somehow an EECA group
is going to have to figure out how those new mailboxes
change the ordering process to re-order those chemicals.

MR. COTE: As a follow-up, who would you
prefer establishing the definitions for those mailboxes?

MR. WECHSLER: Well, I think the actual
definition, of which there is not one now, what we have
is similes. Group A, for example, is considered to be
atmosphere-like acetylene; all right? But there's no
precise definition of what constitutes the parameters,
such as the auto emission or pressure level and the
physical auto emissions pressures and properties that
would reflect why something else would be classified
with acetylene. If I am answering your question
correctly.

And, therefore, that would have to reside
with a group that has that ability to bring that to the
table. That understands what those parameters have to
do with and to be able to define those chemicals, or
mixtures, or whatever we're talking about, into fitting
into those various boxes. Unfortunately, what you have
now, we're not starting out from scratch. We're
starting with an existing situation. The majority of
equipment that's out there has already been pre-defined
for certain groups.
An, in other words, when you go out and buy a piece of explosion-proof apparatus, that's good for Group A; all right? The manufacturing process is pre-established for a parameter based upon a test methodology for a Group A material. The question is not changing that, that physical hardware, but how you are going to handle various other chemicals that are evolving and saying is that material likened to this or is it likened to something else. And then that's where the separation comes in.

MR. COTE: Again, let me just follow-up on it. Knowing where we got historically, who would, who would take the first cut at what should be an A? I mean, you're arguing that the EECA should be the committee that would establish what chemicals ought to go into A?

MR. WECHSLER: Correct.

MR. COTE: The initial cut at A was taken by the National Electrical Code committee. Would you propose that, that if you were going to start from a, from a clean sheet of paper, that they should not be the ones to do that, but that EECA should establish what the definition of the parameters are for A, in addition to what chemicals fit into those parameters?

MR. WECHSLER: I guess what I am suggesting
is that, at this point, we're on a run and we can't go back to a clean slate. But we do recognize there are tremendous more materials out there than are listed in the current version of the National Electrical Code. The National Electrical Code, the way the 1993 now reads, is extremely limited, if you take a black-and-white view of what it says.

And what I am suggesting is, is that the EECA, from this point in time, would pick up the necessary wherewithal to define chemicals and be the resource for defining chemicals at this point into the future.

MR. FLEMING: Mr. Erickson.

MR. ERICKSON: Doug Erickson, member of the Council. The way I understand it then is the Panel 14 would just do the following. It would either say Group A, B, C, D, E, or F? They are or they would say Group 0, 1, 2, 3, 4, 5, or Type 1, 2, 3, 4, 5? That would be the only charge that Panel 14 would have, would be to establish the classification of the groups. Then the EECA would actually come back in and tell you what belongs in each one of those groups; is that correct?

MR. WECHSLER: That's technically correct. Panel 14 would be responsible for hardware type issues. Hard electrical type stuff.
The physical chemical type things and how
you populate that, as you have indicated, as I
understand how you have indicated, would, in fact, be
the EECA and would reside in the NFPA 497-M document,
which is an existing document today.

MR. FLEMING: So, it’s really a hybrid of
what we have had over the course of the last twenty-two,
twenty-three years?

MR. WECHSLER: Well, it originated in 1981 as
and outfall from all this other work. So, it was
recognized, at that point in time, that the National
Electrical Code, at least this is my opinion, was not
the place for all these things to go. It needed a
separate body to do all that work. This body is out
there trying to do this work. I am just wanting to make
sure of the point that they’re given the full foundation
and support to proceed under the charge that I thought
was what they were asked to do.

MR. FLEMING: Question from the chair. Why
hadn’t the EECA committee sought to write physical
descriptions to help categorize gases into these various
categories?

MR. WECHSLER: The EECA has been in a dilemma
over the past few years as to who had that authority and
what could be done. It was our understanding, when we
went through this, talking with staff, that that was not
a clear issue. For example, the NEC defines Group A,
and we have not been given full authorization from NFPA
to change those groups, only to work within what they
have defined. So, it's never been a clear-cut
resolution of what the problem is.

If EECA is the group, as what I am
suggesting here, to do that definition, we will take the
initiative and define that group. But we cannot do that
until somebody gives us the authority to do that, which
we apparently don't think we have. And that's why I'm
here, to clarify that.

MR. FLEMING: Mr. Reed.

MR. REED: Al Reed, member of Council.

Going back to your 1971 opening statement.
Is it still today the existing temperatures and AIT
materials being a based item to be concerned about,
whether it be by EECA or Panel 14? Or that's not the
group?

MR. WECHSLER: No. No. That was an issue
that came out to be a driving force. Unfortunately, we
found out from more extensive testing that auto
emissions temperature, the AIT, is not as powerful a
factor. And there's quite a bit of information that
suggests that we are extremely conservative in how we a
arrived at that number. So, therefore, that's not the best number always to use. There are certain other types of physical parameters test data that's much more critical. In fact, in the new, newer versions of 497 that we are developing and propose to issue later this year, you will see the fact that we have expanded our tables to include the necessary parameters so that users can have a better opportunity to utilize the data out there to help provide a guidance as to what groups those materials shall be in.

So, we have made tremendous strides in technology to define where these things are; so, you're correct. The 1971 AIT is not the real focus of where the attention should be paid to.

MR. FLEMING: Thank you.

MR. LAWRY: Ed Lawry, member of Council.

Where are the groups specifically to find out, if we look at in the NEC, they have Group A as mixtures. That really doesn't define the group. It just says hearing a material, that is a Group A material. But where is it? What makes it a Group A? Where is the definition of that?

MR. WECHSLER: You have just hit the nail right on the head. There is no explicit definition for what a Group A is. Other than what's now written in the
National Electrical Code, which is an OSHA-enforced
document that simply says Group A is atmospheres
containing acetylene. There is no ifs, ands, or buts.
That's what it says. And some people literally
interpret that in meaning if you have anything else that
looks like acetylene, acts like acetylene, but is not
acetylene, it's not Group A.

MR. LAWRY: I guess I never looked at that
as a definition. I looked at that as an example.

MR. WECHSLER: Group A material? In my
understanding, an example is a fine-print note. When it
comes out and said these are the groups and the groups
are defined as such, that's a definition.

MR. FLEMING: Any other questions from
Council members? Mr. Cote.

MR. COTE: Arthur Cote, secretary of the
Council.

I have noticed that in your desire to, you
desired response, you said that EECA is responsible for
defining the NEC groups, which was the point that was
just made by Mr. Lawry, establishing definitions for
those. It strikes, it strikes me that it's, it's going
to be hard for either side to do that totally
independently. I mean, how can the NEC committee just
say, gee, I think there's a need for five groups, or six
groups, or ten groups, or fifteen groups, or even A, B, C, D, E, or 1, 2, 3, 4, 5 without having some sort of a cutoff, a demarcation point, if they defer that totally? I don't know how you get there.

Let me go to the classification and the classification definitions, which you didn't include as part of your suggested response. Those are clearly established now by the NEC committee. They have to do with whether the vapors there are continuously or not continuously, under catastrophic failure or not and so forth. I don't know how you can and I don't know how you have drawn that blank definition.

MR. WECHSLER: Let me see. I think I can see what your comments and concerns are. The divisions are the responsibility, and those have to do with whether it's a high hazard, low hazard, present abnormally or present infrequently. Those are still part of the NEC an we're not asking for anything to be changed on that. As I said, this is an existing system. It's totally in place. What we are trying to do is recognize that it's in need of some repair and some fixing up.

Yes, if we are starting all over from scratch and had to pick a new set of groups and everything else, your question would be, yes, we do have
to work with this other group. But the seven groups
have already been established. There are known
materials that are filling those groups right now.

What we're looking at is what do we do with
all this other stuff that comes in here and how do we
stop the issue once and for all? And since you have
already got the setup, you have already got the number
of mailboxes, so to speak, and you have got some
chemicals that rightly fill them, all we are suggesting
then is the base work has been done. The hard part that
the Panel 14, they have done their part. They have set
up the mailboxes and they have put some materials in to
fill them. They have a hardware over on the other side
that matches this. All we are doing is saying, all
right. They have done their job. Let's transition over
to this other team that can spend more time looking at
the various chemicals and filling those boxes as
appropriate, recognizing that they may have more
chemical background and more experience with the
chemicals than some of the electrical guys, and keep the
system together.

We are not saying we are going to throw out
the whole system here. We are saying, let's make it
better. The improvement will come by allowing the EECA
committee to go ahead and work within the framework
that's already been established.

Now, if Panel 14 somehow decides we want to have more groups, and I am saying that's their right to do, somehow, whether they do those new groups, is something that has got to give in this other system. And when they do that, I don't know what they're going to do, but there's got to be some communication. You can't just say if A, B, C, or D covers all physical organic chemicals that we have now, and you come out with a new group that's also handling flammable materials, then something has got to shift in the A, B, C, D. It's also got to affect E, F, and G down here.

So, there's got to be some give-and-take. But all I am trying to do is establish a working relationship and whose responsible. Not to say this a work in a vacuum type proposition, because we can't, because we all have to work together on codes and standards to make sure that what we are doing solves the end objective. It's a method of redefining the key responsibilities to get the end result done.

MR. COTE: Al Cote. How would you handle the issue which is now on the table or almost on the table, as far as Zone Zero is concerned? I mean, Zone Zero is changing the structure, which is changing the mailboxes or the definitions of the mailboxes. It
sounds to me like what you would say is Panel 14 would establish that and then the EECA could determine what materials and/or components fit into those mailboxes, and I thought that was the essence of the answer that came back from this Council the first time. So, I must be missing something.

MR. WECHSLER: Well, I am not sure I can really answer your question about what's going to happen with Zone Zero. Zone Zero, I guess you all are aware, is the IEC implementation of the European, more or less, European styles. The test methodologies are different from those that we are using in the U.S., but ethylene in Europe, ethylene in the U.S., propane in Europe, and propane in the U.S., are exactly the same molecular structure.

If they call it, if they will call it on their side II, and we call it Group C, and we can agree we're still talking about the same material, do we need to complicate everybody's lives by having duplicate nomenclatures? So, I don't know how to really resolve that, except to say that the material is the same. And if somebody decides in how we match these things up, because of the hardware situations, then we are going to have to react and figure out how the system is going to work. GATT has, more or less, imposed that. Unless we
harm -- at least to my understanding, unless we harmonize with the European world standards by the year 2000, there is no more harmony and we will obliged to follow the IEC standards. What that means is basically four years to do something. Otherwise, the game's going to be over, unless politics, Congress changes what they're going to do and we get -- or those specific functioning of GATT.

But the problem is, going back to your point, I don't know how to answer your question, except to say materials are going to be materials. The hardware is going to have to work to be able to support it. And somehow, when you get Zone Zero into this picture, we have just touched the tip of the iceberg. The example I gave up here of carbon disulfide is classified material in the IEC standards. We do not classify it carbon disulfide in our standard. Right now, it's not part any grouping. You can talk to people and ask what do you consider carbon disulfide. Some people use Group A and some people say it's not in as part of the groups. I don't have to do any thinking, but it is a hazardous material. You can just ignore it. In some cases, it's really worse than a Group A material. Yet, there is no group for it.

So, there's existing problems that we have
out here. Now, I am not saying the world is going to
get simpler. We'll have to work them through at the
time. But this would, at least I think, give us the
necessary starting point to be able to do our job and
understand where we are going, rather than in the system
we have now.

MR. FLEMING: Final questions?

MR. BERND: Bob Bernd, member of Council.

Mr. Wechsler, I am trying to understand what
kind of definition EECA could come up with. Let's say,
for example, Group 1, right now, the NEC says group
atmospheres containing acetylene that appears to be a
definition off Group 1.

What you are saying is there may be other
materials that would fit within similar parameters as
acetylene?

MR. WECHSLER: Possibly.

MR. FLEMING: How could it be defined?

Would it be by the properties of the materials?

MR. WECHSLER: In essence, it would be
defined from various test methodologies that produce
signature, for lack of a better term, of various
materials. For example, when you ignite a material in a
test chamber, you will notice certain abilities of the
flame front to move. It will pass through gaps in some
cases. Then how much cooling you need in order for it, as it passes out of the gap, whether it will ignite or not ignite a subsequent chamber, change a flammable material. And there's a condition of overpressure that's involved with that. Does this condition have to do with those various parameters in some way?

The EECA, I would guess, would come to grips with defining those parameters and saying Group A material might be a material such as acetylene, but it may also have types of properties, when conducted or tested in this type of test methodology, and you would have to fill in the blanks.

MR. FLEMING: So, it might very well be a fairly complex definition?

MR. WECHSLER: Yes. Yes. We would have data that would allow people to use some of that information to be able to arrive at their various groups. Again, this would take that information out of the NEC, more or less, and put it in this separate reference document, which is, which is a document that's really just being written totally to address the group situation. I think it would be a better tool for the user to use, rather than just this black and white it is or it isn't.

MR. FLEMING: Thank you. Anybody else?
Thank you very much for taking this time. Please be sure that the Council will consider the proposal and we'll take action on this issue prior to adjourning. I will notify you of that action in writing by the secretary, and I wanted to remind you that no member of the staff or Council is authorized to give you any information over the telephone. So, you will have to wait for that written information.

MR. WECHSLER: Thank you very much.

Appreciate it.

* * * * *

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
SANDRA WENGER, RPR
(412) 261-6254
April 10, 1995

NFPA Standards Council

Subject: Supplement information to Standard Council letter from D. Wechsler dated 2/23/95

Issues:
Which NFPA technical body should define NEC Groups?
Which NFPA technical body should define what materials should be placed in what groups, or put another way, who is responsible for the definition of the NEC Article 500 Groups?

Desired response from the Standards Council:

Panel 14 of the National Electrical Code is responsible for Class, and Division definitions and for the establishment of 7 groups (Groups A, B, C, D, E, F, and G).

The Electrical Equipment in Chemical Atmospheres (EECA) Committee is responsible for defining the NEC Groups, as well as the chemicals, compounds or other materials that may reside in each group. Additionally the EECA Committee is responsible for resolving issues resulting from the introduction of other types of classification designations that may become part of the NEC at some future date.

Information time line:

National Electrical Code (NEC) before 1971:
Prior to the publication of the 1971 NEC, it was necessary to determine the ignition temperature (AIT) of materials in addition to the maximum safe gap (MSG) and explosion pressures developed. (See attachment #1-1968 NEC Section 500-2)
In 1971: The NEC was changed to require that heat producing equipment for use in hazardous locations be marked with the operating temperature and that exposed surface temperatures of equipment not exceed the ignition temperature of the flammable atmosphere. This change permitted flammable gases and vapors to be classified in Groups A, B, C and D without consideration of the ignition temperature of the material. Thus consideration of ignition temperature became one of the criteria for installation of equipment rather than for classification of the new flammable material.


1978 NEC: (See attachment #2) This version contains the effects of the 1971 changes discussed above. Note Table 500-2 "Chemicals by Groups" and sections (b) Marking and (c) Temperature.

1979: Work by the National Materials Advisory Board (NMAB) of the National Academy of Sciences containing extensive list of gases, vapors and dusts and their group classifications.

1980: Technical Committee on Electrical Equipment in Chemical Atmospheres (EECA) recommended to NFPA that NMAB lists be removed from the 1981 Code, which was done. EECA then developed criteria for gases, vapors, and dusts for the classification lists and then reviewed NMAB recommendations. Findings were published as 497M manual in 1981.

1984 NEC: (See attachment #3) This edition example shows how the transition from the NEC to NFPA 497M was undertaken by the introduction of FPN's addressing the groups that appeared in the NEC and 497M.

1993 NEC: (See attachment #4) This edition displays Groups with materials. Notice that the number of materials listed are far less in number than those contained in NFPA 497M. Also notice how the groups are specifically defined, i.e., "Group A: Atmospheres containing acetylene".

Additionally during the '96 Code cycle, NEC Panel 14 attempted to address the IEC classification process, via action on public proposal, and almost included carbon disulfide as a Group A material.
SPECIAL NOTICE

TENTATIVE INTERIM AMENDMENT NO. 146

Released February 14, 1969

NATIONAL ELECTRICAL CODE 1968

ARTICLES 500 and 501—HAZARDOUS LOCATIONS

Section 500-2. Special Precaution. Revised to Read:

500-2. Special Precaution. The intent of Articles 500-803 is to require a form of construction of equipment, and of installation that will insure safe performance under conditions of proper use and maintenance. It is, therefore, assumed that inspection authorities and users will exercise more than ordinary care with regard to installation and maintenance.

The explosion characteristics of air mixtures of hazardous gases, vapors, or dusts vary with the specific material involved. Classification of a hazardous mixture into a Class I hazardous location, Group A, B, C or D, involves determinations of maximum explosion pressure, maximum safe clearance between parts of a clamped joint in an explosion enclosure, and the minimum ignition temperature of the hazardous mixture. For Class II location, Groups E, F, and G, the classification involves the tightness of the joint of assembly and shaft openings to prevent entrance of dust in the dust-filled enclosure. The blanket effect of layers of dust on the equipment that may cause overheating, electrical conductivity of the dust, and the ignition temperature of the dust. It is necessary therefore that equipment be approved not only for the class of the dust.

For purposes of testing and approval, various air mixtures (not oxygen enriched) have been grouped on the basis of their hazardous characteristics, and facilities have been made available for testing and approval of equipment for use in the following atmospheric groups:

Group A. Atmospheres containing acetylene.

Group B. Atmospheres containing butadiene, ethylene oxide, hydrogen (or gas or vapor equivalent in hazard to hydrogen, such as manufactured gas), or propylene oxide.

Group C. Atmospheres containing acetone, cyclopropane, diethyl ether, ethylene, isoprene, or unsymmetrical dimethyl hydrazine (UDMH); Group D. Atmospheres containing acetone, acrylonitrile, alcohol, ammonia, benzene, benzyl, butane, ethylene dichloride, gasoline, benzene, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, or xylene.

Group E. Atmospheres containing metal dusts, including aluminum, magnesium, and their commercial alloys, and other materials of similarly hazardous characteristics and their commercial alloys, and other materials of similarly hazardous characteristics.

Group F. Atmospheres containing carbon black, coal or coke dust.

Group G. Atmospheres containing flour, starch, or grain dust.

Certain chemical atmospheres may have characteristics which would require safeguards beyond those required for any of the above groups. Carbon disulfide is one of these chemicals because of its low ignition temperature (105°C) and the small joint clearances required to arrest its flame.

For a complete listing of properties of flammable liquids, gases and solids refer to NFPA No. 22531.
not only for the class of location but also for the explosion properties of the specific gas, vapor, or dust that will be present. In addition, equipment shall not have exposed any surface that opens at a temperature in excess of the ignition temperature of the specific gas, vapor, or dust.

Equipment that has been approved for a Division 1 location shall be permitted in a Division 2 location of the same class and group.

Where specifically permitted in Articles 501 through 503, general-purpose equipment or equipment in general-purpose enclosures shall be permitted to be installed in Division 2 locations if the equipment does not constitute a source of ignition under normal operating conditions.

The characteristics of various atmospheric mixtures of hazardous gases, vapors, and dusts depend on the specific hazardous material involved.

(b) Marking. Approved equipment shall be marked to show the Class, Group, and operating temperature, or temperature range, based on operation in a 40°C ambient, for which it is approved.

The temperature range, if provided, shall be indicated in identification numbers as shown in Table 500-2(b).

Identification numbers marked on equipment nameplates shall be in accordance with Table 500-2(b).

Except No. 1: Equipment of the nonheat-producing type, such as junction boxes, conduit, and fittings and equipment of the heat-producing type having a maximum temperature not more than 100°C (212°F), shall not be required to have a marked operating temperature or temperature range.

Exception No. 2: Fixed lighting fixtures marked for use in Class I, Division 2 locations only, need not be marked to indicate the Group.

Exception No. 3: Fixed general-purpose equipment, other than fixed lighting fixtures, which is acceptable for use in Division 2 locations shall be required to be marked with the Class, Group, Division or operating temperature.

For purposes of testing and approval, various atmospheric mixtures (not oxygen-enriched) have been grouped on the basis of their hazardous characteristics and facilities have been made available for testing and approving equipment for use in the following atmospheric groups:

For Groups A, B, C, and D, see Table 500-2.

Group E: Atmospheres containing metal dust, including aluminum, magnesium, and their commercial alloys, and other metals of similarly hazardous characteristics.

Group F: Atmospheres containing carbon black, charcoal, coal or coke dusts with the percentage of total volatile material (carbon black per ASTM D1620, charcoal, coal, and coke dusts per ASTM D2711) or atmospheres containing these dusts sensitized by other materials that present an explosion hazard.

Group G: Atmospheres containing flour, starch, or grain dusts.

1. Certain chemical atmospheres may have characteristics that require safeguards beyond those required for atmospheres containing dusts of aluminum, magnesium, and their commercial alloys. For example, zinc, thorium, and uranium dusts have extremely low ignition temperatures (as low as 20°C (68°F)), and minimum ignition energies lower than any material classified in any of the Group D or E bush.

2. Certain metal dusts may have characteristics that require safeguards beyond those required for atmospheres containing dusts of aluminum, magnesium, and their commercial alloys. For example, zinc, thorium, and uranium dusts have extremely low ignition temperatures (as low as 20°C (68°F)), and minimum ignition energies lower than any material classified in any of the Group D or E bush.

For a complete list noting properties of flammable liquids, gases, and solids, see Fire-Hazard Properties of Flammable Liquids, Gases, Volatile Solids (NFPA No. 325M-1969).

Formerly the temperature limit of each Group was assumed to be the lowest ignition temperature of any material in the Group, i.e., 280°C for Group D, 180°C for Group C.

To avoid revising this limit as new gases are added (see hexane in Group D and acetaldehyde in Group C), temperature will be specified in future markings.

The ignition temperature for which equipment was approved prior to this requirement shall be assumed to be as follows:

Group A—280°C (536°F)  Group C—180°C (356°F)

Group B—200°C (392°F)  Group D—280°C (536°F)
Table 500-2. Chemicals by Groups

<table>
<thead>
<tr>
<th>Group A Atmospheres</th>
<th>Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals</td>
<td>1-butanol (butyl alcohol)</td>
</tr>
<tr>
<td>acetylene</td>
<td>n-butyl acetate</td>
</tr>
<tr>
<td>Group B Atmospheres</td>
<td></td>
</tr>
<tr>
<td>acrolein (inhibited)</td>
<td>di-isobutylene</td>
</tr>
<tr>
<td>butadiene</td>
<td>ethane</td>
</tr>
<tr>
<td>hydrogen</td>
<td>ethanol (ethyl alcohol)</td>
</tr>
<tr>
<td>manufactured gases containing more</td>
<td></td>
</tr>
<tr>
<td>than 30% hydrogen (by volume)</td>
<td>ethylene diamine (anhydrous)</td>
</tr>
<tr>
<td>propylene oxide</td>
<td>ethylene dichloride</td>
</tr>
<tr>
<td>Group C Atmospheres</td>
<td></td>
</tr>
<tr>
<td>acetdehyde</td>
<td>heptane</td>
</tr>
<tr>
<td>allyl alcohol</td>
<td>hexanes</td>
</tr>
<tr>
<td>carbon dioxide</td>
<td>isoprene</td>
</tr>
<tr>
<td>crotonaldehyde</td>
<td>isopropyl ether</td>
</tr>
<tr>
<td>cyclohexane</td>
<td>isosteryl oxide</td>
</tr>
<tr>
<td>diethyl ether</td>
<td>methanol (methyl alcohol)</td>
</tr>
<tr>
<td>diethylamine</td>
<td>3-methyl-1-butanol (isamyl alcohol)</td>
</tr>
<tr>
<td>diphenylmethane</td>
<td>methyl ethyl ketone</td>
</tr>
<tr>
<td>ethylene</td>
<td>methyl isobutyl ketone</td>
</tr>
<tr>
<td>ethyl hydrocarbons</td>
<td>2-methyl-1-propanol (isobutyl alcohol)</td>
</tr>
<tr>
<td>Group D Atmospheres</td>
<td></td>
</tr>
<tr>
<td>acetamide (glacial)</td>
<td>pentane</td>
</tr>
<tr>
<td>acetene</td>
<td>1-pentanol (amyl alcohol)</td>
</tr>
<tr>
<td>acrylonitrile</td>
<td>propane</td>
</tr>
<tr>
<td>ammonia</td>
<td>1-propanol (propyl alcohol)</td>
</tr>
<tr>
<td>butane</td>
<td>2-propanol (isopropyl alcohol)</td>
</tr>
</tbody>
</table>

Note: Group D equipment shall be permitted for this atmosphere if such equipment is located in accordance with Section 501.3(a) by sealing all conduit and pipe with a size of 6" or larger.

Note: For classification of areas involving ammonia atmosphere, see Safety Code for Mechanical Refrigeration (ANSI B9.1-1971) and Safety Requirements for the Storage and Handling of Ammonia and Other Refrigerants (ANSI B6.1-1972). Also known by the synonyms benzene, lignin, petroleum ether, or naphtha.
NATIONAL ELECTRICAL CODE


(EPN): For protection against static electricity hazards, see Recommended Practice on Static Electricity, NFPA 77-1977 (ANSI).


All conduit referred to herein shall be threaded with a NPT standard conduit cutting die that provides 1/8-inch taper per foot. Such conduit shall be made up wrench tight to minimize sparking when fault current flows through the conduit system. Where it is impractical to make a threaded joint tight, a bonding jumper shall be utilized.

500-2. Special Precaution. Articles 500 through 503 require equipment construction and installation that will ensure safe performance under conditions of proper use and maintenance.

(NFN): It is important that inspection authorities and users exercise more care with regard to inspection and maintenance.

(NFN): The explosion characteristics of air mixtures of gases, vapors, or dusts vary with the specific material involved. For Class I locations, Groups A, B, C, and D, the classification involves determinations of maximum explosion pressure, maximum safe clearance, and minimum ignition temperature of the ambient atmosphere.

For Class II locations, Groups E and G, the classification involves the tightness of the joints, the use of explosion-proof devices, and the blanketing effect of dust on the equipment that may cause overheating, electrical conductivity of dust, and the ignition temperature of the dust. It is necessary, therefore, that equipment be approved by the appropriate authority and also be subject to the requirements of the National Electrical Code.

(NFN): Low ambient conditions require special consideration. Explosion-proof or dust-proof equipment may not be suitable for use at temperatures lower than 

-25°C (13°F) unless they are approved for low-temperature service.

However, at low ambient temperatures, flammable concentrations of vapors may exist in a location classified as Class I, Division 1 at normal ambient temperature.

(NFN): For purposes of testing, approval, and area classification, various air mixtures (not oxygen-enriched) have been grouped in this section into categories and identifying characteristics and facilities have been established for testing and approving equipment for use in various atmospheric groups.

(NFN): Group A: Atmospheres containing acetylene.

(NFN): Group B: Atmospheres such as butadiene, ethylene oxide, propylene oxide, acrylonitrile, or hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas).

(NFN): Group C: Atmospheres such as cyclopropane, ethyl ether, ethylene, or gases or vapors of equivalent hazard.

(NFN): Group D: Atmospheres such as acetone, alcohol, ammonia, benzene, butane, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, or gases or vapors of equivalent hazard.

(NFN): Group E equipment may be used for this atmosphere if such equipment is isolated in accordance with Section 501-5(a) for article 1/2-inch size or larger.

(NFN): Group C equipment may be used for this atmosphere if such equipment is isolated in accordance with Section 501-5(a) by sealing all conduit 1/2-inch size or larger.
Supplemental Agenda - July 22, 2013

July 22, 2013

500-3. Special Precaution. Articles 500 through 504 require equipment construction and installation that will ensure safe performance under conditions of proper use and maintenance.

Exception: Equipment approved for a specific gas, vapor, or dust.

(b) Class II Group Classifications. Class II groups shall be as follows:

(1) Group E: Atmospheres containing combustible dusts, including aluminum, magnesium, and their commercial alloys, or other materials whose particle size, abrasiveness, and conductivity present similar hazards in the use of electrical equipment.

(2) Group F: Atmospheres containing combustible dusts, including carbon black, charcoal, coal, and coke dusts that have more than 5 percent total entrapped volatiles, or dusts that have been identified by materials so that they present an explosion hazard.

(3) Group G: Atmospheres containing combustible dusts not included in Group E, F, including flour, grain, wood, plastic, and chemicals.

(4) Group D: Atmospheres such as acetone, ammonia, benzene, butane, cyclopropane, ethanol, gasoline, hexane, methanol, methane, natural gas, naphtha, propane, or gases or vapors of equivalent hazard.

Exception: For atmospheres containing ammonia, the authority having jurisdiction for enforcement of this Code shall be permitted to reclassify the location to a less hazardous location or a non-hazardous location.


(FPN No. 2): The explosion characteristics of air mixtures of gases or vapors vary with the specific material involved. For Class II locations, Groups A, B, C, and D, the classification involves determinations of maximum explosion pressure and maximum safe clearance between parts of a clamped joint in an enclosure. It is necessary, therefore, that equipment be approved not only for class but also for the specific group of the gas or vapor that will be present.

(FPN No. 3): Certain chemical atmospheres may have characteristics that require safeguards beyond those required for any of the above groups. Carbon disulfide is one of these chemicals because of its low ignition temperature (21°F) and the small joint clearance permitted to arrest its flame.

Leona Attenasio Nisbet, Director  
*Standards Administration*

February 9, 1995

Mr. David Wechsler  
Union Carbide Corporation  
P.O. Box 8361  
South Charleston, WV 25303

Dear Mr. Wechsler:

I am writing to inform you that in response to your complaint requesting that the Council clarify that responsibility for group classification of materials is assigned to the Technical Committee on Electrical Equipment in Chemical Atmospheres, the Council voted that the National Electrical Code has the authority to establish structure. The National Electrical Code defines the area classifications. The Technical Committee on Electrical Equipment in Chemical Atmospheres would classify chemical hazards into the appropriate categories. The criterion of area classification and chemical hazard category (group) is the basis for equipment selection. The occupancy standards would address the need for a particular classification within portions of their occupancies.

I hope this ruling by the Council clarifies this issue.

Very truly yours,

Leona Attenasio Nisbet, Recording Secretary  
Standards Council

LAN/djb

c: Members, TC on Electrical Equipment in Chemical Atmospheres  
Members, National Electrical Code Panel 14  
Members, NEC Technical Correlating Committee  
A. E. Cote, C. C. Grant, M. C. Ode, M. W. Earley

95-6

Publishers of the National Fire Codes® and National Electrical Code®

A non-profit membership organization dedicated to promoting safety from fire, electricity, and related hazards through research, codes and standards, technical advisory services, and public education since 1896.
MEMORANDUM

TO: Staff Liaisons

FROM: Casey C. Grant

DATE: March 28, 1995

SUBJECT: Staff Information Sheet on "Zone Zero" Topic

NFPA Technical Committee Staff Liaisons, as well as other staff, should be aware of a wide ranging technical topic referred to as Zone Zero that potentially affects numerous NFPA codes and standards. This topic is the subject of debate in the A95 cycle.

To address the numerous technical questions that are being directed toward staff on this matter, the attached staff information sheet has been prepared. A small Task Group of staff from the various departments helped compile this information.

Let me know if you have any further questions.

CCG

c: A. Cote
L. Nisbet
G. Tokle
R. Vondrasek
NFPA Staff Information Sheet

on

ZONE ZERO

NFPA Technical Committee Staff Liaisons, as well as other staff, should be aware of a wide ranging technical topic referred to as Zone Zero that potentially affects numerous NFPA codes and standards. This technical topic has existed for a long time, but changes are currently being proposed.

This topic is currently referred to in a variety of ways, but perhaps most commonly as the Zone Zero issue. This has also been referred to as the Zone One issue, IEC issue, Hazard Classification issue, or the Electrical Equipment issue.

This information sheet is simply intended as an unbiased fact finding information sheet for NFPA staff. It is not intended to imply any position on the subject. For additional information on this topic, refer to "Electrical Installations in Hazardous Locations" by Schram & Earley, 1988.

BACKGROUND

The following background information summarizes the different terminology that is commonly used on this topic:

Hazardous Atmosphere
This situation involves the placement of electrical equipment in areas that have or may have a hazardous atmosphere. The concern is to prevent a fire or explosion by controlling any source of ignition created by the electrical equipment.

The hazardous atmosphere might also be referred to as a hazardous area or a hazardous location. This might also be called a classified atmosphere, classified area, or classified location. All of these describe a three dimensional volume that contain gases, vapors, dusts, or frangible fibers that could result in a fire or an explosion.

Classifications
The type of hazardous atmosphere is categorized as one of three types, and these are referred to as the classification of the hazardous atmosphere. The classifications are as follows:

Class I: Locations containing quantities of flammable or combustible gases, vapors or liquids that are explosive or ignitable.
Class II: Locations containing quantities of combustible dusts.
Class III: Locations containing quantities of easily ignitable fibers or flyings that are hazardous.
Divisions
The division identifies the likelihood of a hazardous condition being present. The divisions according to the 1993 edition of the National Electrical Code® are:

**Class I**
Division 1: Hazardous locations where ignitable concentrations of flammable gases or vapors exist under conditions that are due to: 1) normal operations; 2) frequent repair or maintenance operations, or leakage; or 3) simultaneous breakdown of process equipment and electrical equipment.

Division 2: Hazardous locations where ignitable concentrations of flammable gases or vapors exist under conditions that are due to: 1) breakdown of process equipment or rupture of hazard containment; 2) hazardous atmospheres being prevented by mechanical ventilation; or 3) adjacent and communicable with Class I, Division 1 locations.

**Class II**
Division 1: Hazardous locations where ignitable concentrations of combustible dusts exist under conditions that are due to: 1) normal operations; 2) simultaneous breakdown of process equipment and electrical equipment; or 3) the dusts being of an electrically conductive nature (i.e. metal dusts).

Division 2: Hazardous locations where ignitable concentrations of combustible dusts do not normally exist but may occur due to the infrequent malfunction of process equipment.

Class I or Class II
Unclassified: Locations that are not Division 1 or Division 2.

Groups
Groups identify hazardous conditions of similar explosion characteristics. The groups according to the 1993 edition of the National Electrical Code® and the 1991 edition of NFPA 497M, Manual for Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations are:

**Class I**
Group A: Atmospheres containing acetylene.
Group B: Atmospheres containing hydrogen, or equivalent.
Group C: Atmospheres containing ethyl ether vapors, ethylene, or cyclopropane.
Group D: Atmospheres containing gasoline, hexane, naptha, benzene, butane, propane, alcohol, acetone, benzol, lacquer solvent vapors, or natural gas.

**Class II**
Group E: Atmospheres containing metal dust.
Group F: Atmospheres containing carbon black, charcoal, coal, or coke dust.
Group G: Atmospheres containing flour, starch, grain, or combustible plastics.
Summary
The conventional manner for designating the type of electrical equipment to be used in a hazardous location would typically be stated in the following example: "Class I, Division 1, Group A."

EXISTING NFPA CRITERIA

NFPA documents are presently categorized into 3 distinct realms of focus. However, the scope of responsibilities is presently being challenged and is pending clarification by the Standards Council. The responsibilities on this topic are as follows:

1) NEC: The National Electrical Code® (NEC) is responsible for establishing and defining the Classifications and Divisions. This is handled by Panel 14 in NFPA 70, Articles 500 through 516. The responsibility for the establishment and defining of Group structure is subject to debate at this time, pending clarification of the jurisdictional scope of the NEC and the EECA by the Standards Council.

2) EECA: The T/C on Electrical Equipment in Chemical Atmospheres (EECA) is responsible for outlining the chemicals in each group. This is addressed in NFPA 497M, which is presently in the A96 revision cycle.

3) Other: Various NFPA codes and standards detail the physical extent of the hazardous location for their particular occupancy or application. Based on a word search of the terms "Division 1" and "Division 2", approximately 75 NFPA codes and standards directly address electrical equipment in hazardous locations.

PROPOSED NFPA CRITERIA

A major change to this criteria has been proposed in the A-95-ROP for NFPA 70, National Electrical Code®. This change involves the introduction of the Zone Zero concept. Part of the motivation for introducing this concept is that it is presently used by the IEC and much of the rest of the world.

This change to NFPA 70 will essentially supplement the existing criteria for electrical equipment in hazardous locations to accommodate the Zone Zero concept. As proposed, the traditional convention will remain, but the option of a Zone Zero classification system will also be recognized.

Table 1 provides a Comparison of Existing Class I Divisions and Proposed Class I Zones. The Zone system essentially subdivides the current Divisions. At this point in time, only Class I locations are affected.

In addition, an alternative Group arrangement is associated with the Zone Zero approach. The proposed zone approach has a Group I category for mining, and a Group II for other industrial
hazardous locations, which are summarized in Table 2. Note that the proposed Group letter designations are reversed from the traditional Group letters.

Which NFPA documents are directly affected by this topic? In response to this question, Table 3 summarizes a word search of NFPA documents and reflects how often each document uses the terms "Division 1" or "Division 2".

### Table 1: Ratings of Equipment that can be used in Existing Class I Divisions and Proposed Class I Zones

<table>
<thead>
<tr>
<th>Rating of Equip (Division/Zone)</th>
<th>Frequently or continuously hazardous</th>
<th>Infrequently hazardous under normal operations</th>
<th>Hazardous due to equip failure or breakdown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division 1</td>
<td>OK</td>
<td>OK</td>
<td>OK</td>
</tr>
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<tr>
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</table>

NOTE: Certain Unclassified equipment can be used in Division 2 locations.

### Table 2: Summary of Existing and Proposed Groups for Gases & Vapors

<table>
<thead>
<tr>
<th>Description of Conditions (Atmospheres containing the following)</th>
<th>Existing Groups (Divisions 1 &amp; 2)</th>
<th>Proposed Groups (Zones 0, 1, &amp; 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylene</td>
<td>Group A</td>
<td>IIC</td>
</tr>
<tr>
<td>Hydrogen, or equivalent</td>
<td>Group B</td>
<td>IIC</td>
</tr>
<tr>
<td>Ethyl ether, ethylene, or cyclopropane</td>
<td>Group C</td>
<td>IIB</td>
</tr>
<tr>
<td>Gasoline, hexane, naphtha, benzene, butane, propane, alcohol, acetone, benzol, lacquer vapors, or natural gas</td>
<td>Group D</td>
<td>IIA</td>
</tr>
</tbody>
</table>

NOTE 1: Comparison of existing Groups and proposed Groups is approximate.

NOTE 2: Proposed Group IIC also includes Carbon Disulfide, which is not included in the current Classification scheme. See section 500-3(a)(4), FPN#3 of the 1993 NEC.

### Table 3: Word Search of NFPA Documents for "Division 1" and "Division 2"

<table>
<thead>
<tr>
<th>NFPA Document</th>
<th>Staff Liaison</th>
<th>Search Occurrences of</th>
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<tbody>
<tr>
<td>1</td>
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</tr>
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## Supplemental Agenda July 29-August 1, 2013

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Note: Documents include issued Codes, Standards, Recommended Practices, and Guides. Handbooks and other publications are not included. ROP and ROC documents are not included.
George H. St. Onge  
60 Olcott Avenue  
Bernardsville NJ 07924  
908 - 766 - 1297

December 13, 1994

Jan. 11 - 13 Meeting  
NFPA Standards Council

Proposed Article 505  
1996 National Electrical Code

Members  
NFPA Standards Council

SUPPLEMENTAL ATTACHMENT 95-6

Gentlemen:

These comments are to oppose including the proposed Article 505 in the 1996 National Electrical Code. I am a member of the Technical Committee on Electrical Equipment in Chemical Atmospheres (EECA).

The December 6 letter from the Standards Council Director indicates that the Jan. 11 - 13 meeting will be concerned with responsibilities for group classification of materials. I think the proposed adoption of Article 505 and associated changes raises other equally important issues which need to be addressed.

It should be very clear that acceptance of Article 505 and associated changes in other Articles result in acceptance and equal status with the existing NEC Division 1 - Division 2 system of a second area classification system based on IEC standards (basically European standards). I don't believe the IEC system is well known to many NEC users. To my knowledge, there has been no NFPA sponsored educational effort to cover this second system particularly with respect to equipment and material application.

Another important issue is whether, in the interests of cooperative standards making, a far reaching NEC change (equal status for a second classification system) on which there has been no prior consultation can be adequately reviewed, discussed, and balloted in the relatively short time between availability of the first NEC draft to other affected NFPA committees and the comment closing date.

I was unable to attend the EECA Sept. 7 - 9 meeting. Committee members had been provided in early to mid-August with "Printout No. 1, NEC Draft for Article 500" which contained the proposed Article 505 and the required associated changes to other articles. I believe this was the first notice EECA members had of the far-reaching scope of the proposed changes.

On August 27, I faxed Mr. Richard Schwab, EECA chairman, and Mr. Mark Ode, staff liaison, my comments opposing Article 505 and especially the changes to Article 500-5 providing equal
status for the second system, as articles incorporated in the NEC text as requirements. To meet what I perceived to be the goal of the changes, I recommended an alternative including an appendix to provide information on the second classification system. A copy of the August 27 letter is attached.

I reiterated my opposition and recommendations in my October 14 comments on NEC Proposal 14-3. A copy of the October 14 comments is attached.

Equal status for a second classification system is a very significant change in the NEC. It could be the most significant change in the Articles 500 since the establishing of the Division 1 - Division 2 classification system which I believe took place with the 1947 or 1948 NEC. I hope the Standards Council will insure that the position and views of all the affected NFPA technical committees are factored into the final disposition of the proposed changes.

According to the A95 ROP draft for the 1996 NEC, Article 500-3 FPN 2, there are 15 NFPA standards containing area classification information. I know the EECA standards will be affected significantly by the proposed changes. I believe the same is true for other standards.

Yours truly,
George H. St. Onge

Member, EECA*

*Member EECA since 1975
1975-1984 representing American Petroleum Institute,
1985 on, independent member.

C: Richard Schwab
Mark Ode
Mr. Richard Schwab  
Allied Signal, Inc.  
Fax No. 201-455-3345

Dear Dick:  

I'll be unable to attend the Sept. 7 - 9 meeting and want to submit my comments on the proposed NEC changes. I'm faxing a copy to Mark Ode at NFPA also.

Articles 500 and 505

My vote is negative on the proposed changes to these Articles. My reasons:

. 500-5 Needs major revisions and transfer of some of the text to an appendix
. 505 Transfer the text to the above appendix as appropriate
. 500-2 Revise in line with comments that follow

I believe the goal of the 500 and 505 changes ought to be recognition of the Zone 0 concept and that intrinsically safe circuits and equipment should be used in such locations. I support adopting the Zone 0 concept.

The NEC changes ought to do this in the simplest way possible. The NEC should adopt from other classification systems what is necessary and appropriate. The changes should not try to introduce an alternative classification system and its associated gas groups except as appendix information.

It seems to me that the breadth of application for the Zone 0 concept and its limits should be recognized. FPN 2 of 500-5(a)(1) or (a)(2) illustrate the limited potential for applying the Zone 0 concept.

My comments on specific articles:

Article 500-5

I don't understand the significance of the requirement for "engineering supervision" when using the Zone 0, Zone 1, Zone 2 classification system but not for the NEC system. In either case, how can this requirement be enforced practically?

I recommend the 500-5 text be revised as follows:
Article 500-5 (continued)

(1) Divide Class 1 Division 1 into either Division 1.0 and 1.1 or Division 1 Zone 0 and Zone 1 with appropriate definitions.

(2) Add an FPN calling attention to the IEC classification system and the appendix containing the IEC definitions. One method which has been used is a table with the location characteristics in the center column with the appropriate NEC and IEC nomenclature to the left and right.

(3) Delete (a)(2),(a)(3),and (b)(2) transferring what is necessary for the IEC definitions to the appendix.

Article 505

Transfer content of 505 to the appendix mentioned above including the applicable text of 505-5, 10, 15 and 20.

On a specific point, please note that the proposed text of 505-15(a)(2) seems to equate intrinsically safe and non-incendive circuits in Zone 0 locations. Perhaps the intent is only to cover the convenience of using the same conduit or cable. If the intent is beyond that, further explanation is needed.

Article 500-2

Article 500-2(a) comments:

. (6) Nonincendive Component is a definition and belongs in Article 100.
   I believe "nonincendive" is based on a single failure premise and as such meets the double contingency Division 2 basis (Articles 501-3(b) and (4)(b) "Exceptions"). See Article 505 comment.

. 500-2(a) should be re-arranged to list equipment first: items (1)(2)(3)(7)(8); and then circuits and systems, items (4)(5)(6) and fiber optics.

Sorry I can't make the Sept. 7-9 meeting. Hope to make the next one.

Yours truly

[Signature]

George St. Onge

[Address]

Fax 617-984-7056
Date October 14, 1994  Name George H. St. Onge  Tel. No. 908-756-1297

Company

Street Address 60 01c0tt Avenue, Bernardsville, NJ 07924

Please Indicate Organization Represented (if any) *(see below)*

1. Section/Paragraph 500-1, 500-2, 500-3, new 505

2. Comment on Proposal No. (from ROP): 14-3

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

4. Comment (include proposed new or revised wording, or identification of wording to be deleted):
   These comments are aimed to move the information on the new proposed location classification system, gas groups, and equipment temperature marking from the NEC articles to an appendix. If this cannot be done, the proposed changes should be deleted.
   500-5 1st paragraph, delete last sentence
   - Add FPN:
     *International Electrotechnical Committee (IEC)79-10 (next

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

   Next page

6. ☐ This Comment is original material. (Note: Original material is considered to be the submitter’s own idea based on or as a result of his/her own experience, thought, or research and, to the best of his/her knowledge, is not copied from another source.)
   ☐ This Comment is not original material; its source (if known) is as follows: ________________________________________________________________________________________________

Note 1: Type or print legibly in black ink.
Note 2: If supplementary material (photographs, diagrams, reports, etc.) is included, you may be required to submit sufficient copies for all members and alternates of the technical committee.

I hereby grant NFPA the non-exclusive, royalty-free rights, including non-exclusive, royalty-free rights in copyright, in this comment and I understand that I acquire no rights in any publication of NFPA in which this comment is used in this or another similar or analogous form is used.

George H. St. Onge
Signature (Required)
4. Comment (continued)

"Classification of Areas" is a parallel classification system using three Zones - Zone 0, Zone 1, and Zone 2 instead of the Class I Division 1 and Class I Division 2 classification system. Refer to Appendix ---.

500-5 - 2nd paragraph, delete.
500-5 (a)(2) Move to Appendix. Delete if not moved.
500-5 (a)(3) Move to Appendix. Delete if not moved.
500-5 (b)(2) Move to Appendix. Delete if not moved.
   Appendix should note that (a)(3) and (b)(2) are expanded versions of the IEC definitions.

505-2 - Delete.
505-5 - Move to Appendix. Delete if not moved.
505-7 - Delete.
505-10 - Move to Appendix. Delete if not moved.
505-15, 20, 25 - Delete. Note 505-15(2) second sentence seems to permit in Zone 0 a wiring condition not permitted by 504-30(2).

5. Statement of Problem and Substantiation for Comment.

A new second classification system should not be included in Articles of the 1996 NEC. An education process is needed and the way to start is to provide information on this second system in a NEC appendix.

I do not believe it is prudent to introduce a new classification system without a preliminary educational effort reaching the cross-section of NEC users and give it equal status to the Division 1 - Division 2 system. The existing system has the benefit of 46 plus years of use, re-examination, and revision.

The panel, by requiring that the new system be used "under engineering supervision" seems to send a warning of the limited state of knowledge among NEC users of the proposed new system and of IEC based equipment application.

The main benefit of introducing the new system seems to be that the Zone 0 concept is recognized. I favor recognizing the concept. The way to do it is to split Division 1. It's too late to do this in the 1996 NEC but FPN 2 of Article 500-5(a)(1) is a start. It certainly provides sufficient warning that some Division 1 locations (although very few) require special attention.

I concur with the reasons given by the 3 panel members for their negative votes. The "Substantiation" doesn't make a very strong basis for adding the new system.

Trade barriers and competitiveness problems are tied to equipment and wiring method acceptability. I have serious doubts that an equipment package wired with rigid metal conduit as permitted by the proposed 505-15(a)(2) or (b) or (c) will ever find ready acceptance in many of the countries whose practices and equipment standards are IEC based.

Last, having two classification systems permitted by 1996 NEC Articles will impose complications and additional burdens on other NFPA committees which will be required to conform in their respective standards. These standards have classification definitions, diagrams, tables, gas group listings, etc. Some examples are NFPA 30, 497A, 497M, and 820. Does the benefit of the second system justify the effort that will be needed? The "Substantiation" is not very convincing.
5. Statement (continued)

For the reasons stated, the panel should provide the information on the new classification system, associated gas groups, and equipment temperature markings in an Appendix. If this is not an acceptable method of providing this information, it should not be included in the 1996 NEC Articles text.

*Organization Represented: None  
February 23, 1995

Ms. Leona A. Nisbet,
Recording Secretary, Standards Council
National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101

Dear Ms. Nisbet:

Subject: Standard Council letter Dated February 9, 1995
NEC and EECA Related Matters

I have received the February 9, 1995, Standards Council reply to my recent request to clarify the responsibility for Group material classifications and appreciate the Council's consideration of this matter. However, the ruling is not clear and has not resolved my inquiry.

As we discussed on February 15, 1995, and at your suggestion, I contacted the newly appointed assistant to Mr. Cote, Mr. C.C. Grant, seeking clarification of the Council's position. Mr. Grant also was not able to explain the Council's position. However, in his new position, Mr. Grant indicated that he will be addressing resolution of the "classification" issues and expects to have his first internal NFPA meeting on this subject on February 28, 1995. He also asked me to provide him with some information to aid in this work, which is included below.

Notwithstanding, I was looking for the Standard Council to issue a simple response that might be in the following format:

Pertaining to the issue of group classification, Panel 14 of the National Electrical Code is responsible for Class and division definitions and for the establishment of 7 groups (Groups A, B, C, D, E, F, and G). The EECA Committee is responsible for defining these Groups, as well as the chemicals, compounds or other materials that may reside in each group. Additionally, the EECA Committee is responsible for resolving issues resulting from the introduction of other types of classification designations that may become part of the NEC at some future date.
To illustrate the nature of the issue and for support for this example reply, consider that the purpose of NFPA 70 (NEC), provides for the practical safeguarding of persons and property from hazards arising from the use of electricity. NEC Articles 500 through 504 cover the requirements for electrical equipment and wiring for all voltages in locations where fire or explosion hazards may exist due to flammable gases or vapors, flammable liquids, combustible dust, or ignitable fibers or flyings. NEC Section 500-2 provides that locations be classified depending on the properties of the flammable vapors, liquids or gases, or combustible dusts or fibers that may be present and the likelihood that a flammable or combustible concentration or quantity is present. NEC fine print notes provide references to other documents, such as NFPA 497A, 30, 32, 36, and 58 (to name just a few) to address the implementation aspects of the “classification” process. NEC section 500-3 (a), establish “Class I-Groups” and provide “examples” of materials within each group. However, a fine print note provides that for additional information on the properties and group classification of Class I materials, see NFPA documents 497M and 325M. (Note: It should be indicated that, lacking a single centralized physical property data base, these references can have different property information for the same chemical. This provides another of many reasons why NFPA must have a single, centralized physical property database).

Thus it can easily be seen that:

a) The NEC establishes the area or location “Electrical Classification” process.

b) The “extents” of the application of the NEC definitions of Class and Division are handled outside Articles 500-504 and rely on numerous other NFPA documents. (Note: Some documents provide conflicting information without apparent technical rational. Thus, a NFPA need exists to bring all classification “extent” issues into a single committee/working group jurisdiction.)

c) Assessment of chemical or materials involved in the NEC classification process are also accomplished outside the NEC, primarily using NFPA 497M, whose Scope is defined as a “manual [which] provides information on specific flammable gases, flammable and combustible liquids, and combustible dusts whose relevant combustion properties have been identified sufficiently to allow their classification into the groups established by the National Electrical Code for proper selection of electrical equipment in hazardous (classified) locations.” (NFPA 325 is also referenced in the NEC, but it has a different scope and has data (AIT data) which in cases conflicts with NFPA 497M.)

With the important and needed introduction of the Article 505, which incorporates some of the IEC classification procedures, a new set of chemical “arrangements” is introduced. Instead of the traditional NEC Groups A, B, C, etc., are “Groups II(A, IIB, etc. Which NFPA Committee will resolve issues like, how do materials not found under Group C relate to the new designations, and how should carbon disulfide which is excluded in the traditional NEC groups but exists in new group designation, IIC, be handled? The timely decision rendered by the Standards Council will directly impact this work.
95-6 P.3

I hope that this additional information will aid the Standards Council in resolving the issue presented. I also hope that consideration be given against printing, for public record, the February 6 letter that was sent to me, for the reasons stated above.

Again, if I can provide any assistance, please contact me.

Sincerely yours,

David Wechsler

Phone (304)-747-5175

cc: C.C. Grant at NFPA
March 6, 1995

Mr. Arthur E. Cote
Secretary, Standards Council
National Fire Protection Assoc.
1 Batterymarch Park
P. O. Box 9101
Quincy, MA 02269-9101

Dear Art:

I am distressed by Mr. Wechsler's Feb. 23, 1995 letter (to Leona) and his apparent attempt to expand the responsibilities of the EECA Committee. I thought Leona’s Feb. 9 letter was quite clear. It confirmed my recollection of the original purpose of the EECA Committee: to guide the NEC Committee CMP 14 in the classification into groups of the various combustible and flammable materials.

You may recall that I was a member of that committee representing UL in the 1970s. I was on the UL engineering staff when Baron Whitaker, at that time Chairman of the NEC Committee, asked that the committee be established to help CMP 14 when a number of new chemicals were tested by UL. See UL Bulletin of Research No. 58.

The key phrase in the Standards Council statement is that the NEC Committee "has the authority to establish structure".

I suggest Mr. Wechsler be advised very specifically that the EECA Committee is not responsible for "resolving issues resulting from the introduction of other types of classification designations that may become part of the NEC at some future date." In my opinion that responsibility rests with the NEC Committee. If the NEC committee cannot, for some reason, resolve the issues, then responsibility reverts to the NFPA Standards Council.
Also, there should be no reference by the Standards Council to "7 Groups --- etc." as Mr. Wechsler suggests. The number of groups, and their identification, is "structure" and the responsibility of the NEC Committee. However, the material in each group is the responsibility of the EECA Committee.

I would appreciate this letter being added to the package of material sent to the Standards Council for their April 12-13, 1995 meeting.

Sincerely:

PETER J. SCHRAM, PE, Member NEC Technical Committee CMP 14

PS

I will be on the road between Florida and Massachusetts April 11-13. Otherwise I would be happy to attend the meeting if it would be of help.
Mr. Art E. Cote
Secretary, Standards Council
National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101

Dear Mr. Cote;

Subject: R.H. Schwab, Sept. 28, 1994 letter
Proposed NEC Article 505

Through an indirect routing, I have received a copy of a letter addressed to you, dated September 28, 1994, and signed by Mr. Richard Schwab, Chairman, of the NFPA EECA Committee, advocating a Committee recommendation to withdraw proposed NEC Article 505.

According to my minutes of the last September, 1994, EECA meeting, the EECA committee took no balloted action recommending that the proposed NEC Article 505, dealing with the Zone 0 concept, contained in IEC 790-12 (1978) and IEC Publication 79-1A (1975) be withdrawn. Also, I have received no official indication as a member of EECA that such a Committee position was being advocated, and am greatly upset that a document of this nature would be distributed not only without the courtesy of being copied, but without following prescribed NFPA protocol.

Additionally, the Chemical Manufacturers Association (CMA), of which I am the Principal Representative on EECA, and which has more than 180 member companies, is on record as supporting the Zone 0 concept. CMA, along with such other organizations as API, and IEEE, feel that Zone 0 offers significant improvements in the application of electrical equipment used in electrically classified locations and we do not want to see Article 505 withdrawn.

My minutes from our EECA meeting do reflect that the EECA members in attendance verbally expressed a number of concerns with the ROP draft version/language of Article 505, especially with its assumed basis of establishing an equivalency of IEC to NEC, and vice versa, material groupings. The EECA Committee was under the impression that the Standards Council had resolved that the EECA Committee and not...
NEC Panel 14, was responsible for the material grouping. In my opinion, the dilemma at our meeting was that EECA felt that it could not take action on an NEC proposal, nor could the EECA initiative modifications to include the IEC groupings into our 497M document, when as yet there was no NFPA recognition of the IEC classification process.

I feel that resolution of the material groups issue can be attained if the Standards Council agrees that the EECA is responsible for material groups within Article 500, and the Council promptly directs the NFPA NEC Correlating Committee to have both new and modified references to material groups within the NEC referenced via fine print notes (FPN's) to NFPA 497M. Further the EECA committee should be directed to take appropriate actions within the needed time frame for the '96 NEC and NFPA 497M documents to be appropriately correlated.

I trust that as Secretary of the NFPA Standards Council you will take prompt and appropriate corrective actions to see that the proposed NEC Article 505 is permitted to continue through the NEC process and that it is not be withdrawn.

If you have any questions, please contact me. My phone number is 304-747-5175 and our fax number is 304-7475915.

Thank you for your support.

Sincerely,

David Wechsler
Principal CMA representative EECA
Principal CMA representative NEC Panel 16
Attachment: Schwab 9/28/94 letter
cc:
Mark Odc, NFPA (same address as Mr. Cote)
Members NFPA EECA Committee (to be sent by NFPA Staff)
Mark Early, NFPA (same address as Mr. Cote)
Mrs. Diana Artemis, Associate Director, Chemical Manufacturers Association, 2501 M Street, Washington, DC 20037
Members of CMA Electrical Task Group (to be sent by CMA Staff)
Mr. D. Harold Ware, Libra Electric Company, 4736 Enterprise Dr., Oklahoma City, OK 73128
Mr. R. Buschart, 14644 Fairfield Farm Dr., Chesterfield, MO 63017
Mr. J. Kuczka, Killard Electric Mfg. Co., P.O. Box 5325, St. Louis, MO 63115
Mr. R. Schwab, Allied Signal Inc., 101 Columbia Rd., Morristown, NJ 07962
Mr. R. McElroy, UCC Loc 511
Leona Attenasio Nisbet, Director
Standards Administration

February 9, 1995

Mr. David Wechsler
Union Carbide Corporation
P.O. Box 8361
South Charleston, WV 25303

Dear Mr. Wechsler:

This is to notify you that in response to your complaint requesting that the Council clarify that responsibility for group classification of materials is assigned to the Technical Committee on Electrical Equipment in Chemical Atmospheres, the Council voted that the National Electrical Code has the authority to establish structure. The National Electrical Code defines the area classifications. The Technical Committee on Electrical Equipment in Chemical Atmospheres would classify chemical hazards into the appropriate categories. The criterion of area classification and chemical hazard category (group) is the basis for equipment selection. The occupancy standards would address the need for a particular classification within portions of their occupancies.

I hope this ruling by the Council clarifies this issue.

Very truly yours,

Leona G. Nisbet
Leona Attenasio Nisbet, Recording Secretary
Standards Council

LAN/djb

c: Members, TC on Electrical Equipment in Chemical Atmospheres
Members, National Electrical Code Panel 14
Members, NEC Technical Correlating Committee
A. E. Cote, C. C. Grant, M. C. Ode, M. W. Earley

95-6
February 23, 1995

Ms. Leona A. Nisbet,
Recording Secretary, Standards Council
National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101

Dear Ms. Nisbet:

Subject: Standard Council letter dated Feb. 9, 1995
NEC and EECA related matters

I have received the February 9, 1995, Standards Council reply to my recent request to clarify the responsibility for Group material classifications and appreciate the Council's consideration of this matter. However, the ruling is not clear and has not resolved my inquiry.

As we discussed on February 15, 1995, and at your suggestion, I contacted the newly appointed assistant to Mr. Cote, Mr. C.C. Grant, seeking clarification of the Council's position. Mr. Grant also was not able to explain the Council's position. However, in his new position, Mr. Grant indicated that he will be addressing resolution of the "classification" issues and expects to have his first internal NFPA meeting on this subject on February 28, 1995. He also asked me to provide him with some information to aid in this work, which is included below.

Notwithstanding, I was looking for the Standard Council to issue a simple response that might be in the following format:

Pertaining to the issue of group classification, Panel 14 of the National Electrical Code is responsible for Class, and division definitions and for the establishment of 7 groups (Groups A, B, C, D, E, F, and G). The EECA Committee is responsible for defining these Groups, as well as the chemicals, compounds or other materials that may reside in each group. Additionally the EECA Committee is responsible for resolving issues resulting from the introduction of other types of classification designations that may become part of the NEC at some future date.

To illustrate the nature of the issue and for support for this example reply, consider that the purpose of NFPA 70 (NEC), provides for the practical safeguarding of persons and property from hazards arising from the use of electricity. NEC Articles 500 through 504 cover the requirements for electrical equipment and wiring for all voltages in locations where fire or explosion hazards may exist due to flammable gases or vapors, flammable liquids, combustible dust, or ignitable fibers or flyings. NEC Section 500-2 provides that locations be classified depending on the properties of the flammable
vapors, liquids or gases, or combustible dusts or fibers that may be present and the likelihood that a flammable or combustible concentration or quantity is present. NEC fine print notes provide references to other documents, such as NFPA 497A, 30, 32, 36, and 58 (to name just a few) to address the implementation aspects of the “classification” process. NEC section 500-3 (a), establish “Class I Groups” and provide “examples” of materials within each group. However, a fine print note provides that for additional information on the properties and group classification of Class I materials, see NFPA documents 497M and 325M. (Note: It should be indicated that lacking a single centralized physical property data base, these references can have different property information for the same chemical. This provides another, of many reasons, why NFPA must have a single, centralized physical property database).

Thus it can easily be seen that:

a) the NEC establishes the area or location “Electrical Classification” process.
b) the “extents” of the application of the NEC definitions of Class and Division are handled outside Articles 500-504 and rely on numerous other NFPA documents. (Note: Some of documents provide conflicting information without apparent technical rational. Thus a NFPA need exists to bring all classification “extent” issues into a single committee/working group jurisdiction.)
c) assessment of chemical or materials involved in the NEC classification process are also accomplished outside the NEC, primarily using NFPA 497M, whose Scope is defined as a “manual [which] provides information on specific flammable gases, flammable and combustible liquids, and combustible dusts whose relevant combustion properties have been identified sufficiently to allow their classification into the groups established by the National Electrical Code for proper selection of electrical equipment in hazardous (classified) locations.” (NFPA 325 is also referenced in the NEC but it has a different scope and has data (AIT data) which in cases conflicts with NFPA 497M.)

With the important and needed introduction of the Article 505, which incorporates some of the IEC classification procedures, a new set of chemical “arrangements” is introduced. Instead of the traditional NEC Groups A, B, C, etc., are “Groups IIA, IIB, etc. Which NFPA Committee will resolve issues like, how do materials now found under Group C relate to the new designations, and how should carbon disulfide which is excluded in the traditional NEC groups but exists in new group designation, IIC, be handled? The timely decision rendered by the Standards Council will directly impact this work.

I hope that this additional information will aid the Standards Council in resolving the issue presented. I also hope that consideration be given against printing for public record, the February 6, letter that was sent to me, for the reasons stated above.

Again, if I can provide any assistance, please contact me.

Sincerely yours,

David Wechsler
Phone (304) 747-5175
CC: C.C. Grant at NFPA
November 21, 1994

Mr. Art E. Cote
Secretary, Standards Council
National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101

Dear Mr. Cote;

Subject: R.F. Schwab, Sept. 28, 1994 letter
Proposed NEC Article 505

Through an indirect routing, I have received a copy of a letter addressed to you, dated September 28, 1994, and signed by Mr. Richard Schwab, Chairman, of the NFPA EECA Committee, advocating a Committee recommendation to withdraw proposed NEC Article 505.

According to my minutes of the last September, 1994, EECA meeting, the EECA committee took no balloted action recommending that the proposed NEC Article 505, dealing with the Zone 0 concept, contained in IEC 790-12 (1978) and IEC Publication 79-1A (1975) be withdrawn. Also, I have received no official indication as a member of EECA that such a Committee position was being advocated, and am greatly upset that a document of this nature would be distributed not only without the courtesy of being copied, but without following prescribed NFPA protocol.

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NEC Panel 14, was responsible for the material grouping. In my opinion, the dilemma at our meeting was that EECA felt that it could not take action on an NEC proposal, nor could the EECA initiate modifications to include the IEC groupings into our 497M document, when as yet there was no NFPA recognition of the IEC classification process.

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I trust that as Secretary of the NFPA Standards Council you will take prompt and appropriate corrective actions to see that the proposed NEC Article 505 is permitted to continue through the NEC process and that it is not be withdrawn.

If you have any questions, please contact me. My phone number is 304-747-5175 and our fax number is 304-7475915.

Thank you for your support.

Sincerely,

David Wechsler
Principal CMA representative EECA
Principal CMA representative NEC Panel 16
Attachment: Schwab 9/28/94 letter
cc:
Mark Ode, NFPA (same address as Mr. Cote)
Members NFPA EECA Committee (to be sent by NFPA Staff)
Mark Early, NFPA (same address as Mr. Cote)
Mrs. Diana Artemis, Associate Director, Chemical Manufacturers Association, 2501 M Street, Washington, DC 20037
Members of CMA Electrical Task Group (to be sent by CMA Staff)
Mr. D. Harold Ware, Libra Electric Company, 4736 Enterprise Dr., Oklahoma City, OK 73128
Mr. R. Buschardt, 14644 Fairfield Farm Dr., Chesterfield, MO 63017
Mr. J. Kucza, Killard Electric Mfg. Co., P.O. Box 5325, St. Louis, MO 63115
Mr. R. Schwab, Allied Signal Inc., 101 Columbia Rd., Morristown, NJ 07962
Mr. B. McClung, UCC Loc 511
July 22, 2013  Supplemental Agenda July 29-August 1, 2013  Page 872 of 1861

[Attachment 13-8-3-m]

Arthur E. Cote
Secretary, Standards Council
National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101,
Quincy, MA 02169-9101

Sept. 28, 1994

Dear Mr. Cote,

SUBJECT: Article 505-5, Class I, Zone 0, 1 & 2 Locations

At a recent meeting of the Electrical Committee in Chemical Atmospheres we spent a considerable amount of time reviewing this new section of the National Electric Code and we elected to comment on this as a Committee as follows:

Article 505-5 is a completely new section. The classification shown in 505-5(a) (Group II C), 505-5(b) (Group II B) and 505-5(c) (Group II A) were derived from IEC 790-12 (1978) and IEC Publication 79-1A (1979). None of this data has been reviewed by the EECA committee which is responsible for Classification of Flammable gases and vapors. The criteria for the Class I Group classifications (500-3(a)) was established a number of years ago by UL 58 which published this data. The classification of gases and vapors where actual test data is not available has been established by the EECA Committee and a National Advisory Board committee (NMAB 353-6) and is also in NFPA 497M.

Since the Standards Council has directed the EECA Committee to place chemicals within group classifications, the Committee feels that this cannot be done without sufficient data on the chemicals shown in Section 505-5. The data on these chemicals should be submitted along with all backup data to the EECA Committee for review and group classification.

---NOTES OR OBSERVATIONS---

A statement, written or oral, that is not presented in accordance with Section 5 of the Standards Committee Operating Procedure will not be considered.
For example, carbon disulfide has never been placed in any group classification in the NEC because of the test data originally published in UL 58. This new article 505 has placed it in Group II C and we don't know why.

Further, it is not clear as to the composition of town gas (oetal gas) as found in Section 505-5(b). The nearest item to this in 4974 is "Fuel & Combustible Process Gas" containing more than 30% hydrogen by volume shown in the Table 2-3. The critical item here is the volume per cent of hydrogen in a manufactured gas of variable composition. We certainly cannot be sure of the Class II B classification in Article 505 for town gas based on the information that is now available to us.

It would be our recommendation to withdraw article 505 until such a review is made and it is possible to determine whether Group II C is indeed equivalent to Class I, Groups A & B, Group II B is equivalent to Class I Group C and Group II A is equivalent to Class I, Group D.

Sincerely,

R. F. Schwab
Chairman, EBCA

Richard Buschart
14644 Fairfield Farm Dr.
Chesterfield, MO 63017

D. Harold Ware
Libra Electric Company
4736 Enterprise Drive
Oklahoma City, OK 73128

CC: Mark Ode (NFFA)

WordPerfect: EBCA (RFS.MISC/EBCA)
locations. Without labels to identify the application of the wiring, enforcement authorities cannot determine that an installation is in compliance with the Code. (ROP 14-20)

(FPN No. 2): In unclassified locations, the identification is necessary to assure that nonintrinsically safe wiring will not be inadvertently added to existing raceways at a later date. (ROP 14-20)

c) Color Coding. Color coding shall be permitted to identify intrinsically safe conductors where they are colored light blue and where no other conductors colored light blue are used. Likewise, color coding shall be permitted to identify raceways, cable trays, and junction boxes where they are colored light blue and shall contain only intrinsically safe wiring. (ROP 14-185)

(ROP 14-8)

ARTICLE 505 — CLASS I, ZONE 0, 1, AND 2 LOCATIONS

505-2. General Requirements. The general rules of this Code shall apply to the electrical wiring and equipment in locations classified as Class I, Zone 0, Zone 1, or Zone 2. Exception: As modified by this article.

505-5. Grouping and Classification. For purposes of testing, approval, and area classification, various air mixtures (not oxygen enriched) shall be grouped as follows.

(FPN): Group I electric apparatus are intended for use in underground mines. See Section 90-2(b)(2).

Group II is subdivided according to the nature of the gas atmosphere, as follows.

(a) Group IIA. Atmospheres containing acetylene, hydrogen, carbon dioxide, or gases of equivalent hazard.

(FPN): This grouping is approximately equivalent to Class I, Groups A and B, as described in Sections 900-3(a)(1) and (a)(2).

(b) Group IIB. Atmospheres containing acetylene, hydrogen, carbon dioxide, or gases of equivalent hazard.

(FPN): This grouping is approximately equivalent to Class I, Group C, as described in Section 900-3(a)(3).

(c) Group IIIA. Atmospheres containing acetylene, hydrogen, carbon dioxide, or gases of equivalent hazard.

(FPN No. 1): This grouping in (c) above is approximately equivalent to Class I, Group D, as described in Section 900-3(a)(4).

(FPN No. 2): The gas subdivision in (a), (b), and (c) above is based on the maximum experimental safe gap, minimum igniting current, or both. The test apparatus for determining the maximum experimental safe gap is described in IEC Publication 709A (1975) and UL Technical Report No. 38 (1984).

(FPN No. 3): The classification of mixtures of gases or vapors according to their minimum experimental safe gaps and minimum igniting currents is described in IEC Publication 709-12 (1978).

(FPN No. 4): It is necessary that the meaning of the different equipment markings and Group II classifications be carefully observed to avoid confusion with Class I, Groups A, B, C, and D.

505-7. Zone Classification. The classification into zones shall be in accordance with Sections 90-5(a)(3), (a)(3), and (b)(2).

505-10. Approval and Marking.

(a) Approval. Equipment that has been approved for a Zone 0 location shall be permitted in a Zone 1 or Zone 2 location of the same gas group. Equipment that has been approved for a Zone 1 location shall be permitted in a Zone 2 location of the same gas group.

(b) Marking. Approved equipment shall be marked to show the class, zone, gas group, and temperature class referenced to a 40°C (104°F) ambient.

July 22, 2013

Supplemental Agenda July 29-August 1, 2013

The temperature class marked on equipment shall be as shown in Table 505-10(b).

Table 505-10(b). Classification of Maximum Surface Temperature for Group II Electric Apparatus

<table>
<thead>
<tr>
<th>Temperature Class</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Surface Temperature (°C)</td>
<td>540</td>
<td>500</td>
<td>200</td>
<td>115</td>
<td>100</td>
<td>85</td>
</tr>
</tbody>
</table>


(a) Zone 0. In Class I, Zone 0 locations, only the following wiring methods shall be permitted.

(1) Intrinsically safe wiring in accordance with Article 504.

(2) Threading rigid metal conduit complying with the last paragraph of Section 500-2 with listed explosionproof fittings and boxes, or listed Type M1 cable with listed fittings suitable for use in Class I, Division 1 locations. The conduit or cable shall contain only intrinsically safe or nonincendive circuits. All conduits 1/2-inch trade size or larger shall be sealed in accordance with Sections 501-5(a), (c), and (d).

(FPN): In applying the sealing requirements of Sections 501-5(a), (c), and (d), it is intended that the references to Division 1 be interpreted as Zone 0.

(b) Nonconductive optical fiber cable with approved energy-limited supply.

(b) Zone 1. In Class I, Zone 1 locations, all wiring methods permitted for Class I, Division 1 locations and Class I, Zone 0 locations, including requirements for sealing, shall be permitted. In addition, cables listed for the location and Type MC cable with a gas/vapor tight continuous aluminum sheath, an overall jacket of corrosion resistant polymeric material, and equipment grounding conductors in accordance with Section 250-20, and provided with termination fittings approved for the application shall be permitted.

(c) Zone 2. In Class I, Zone 2 locations, all wiring methods permitted for Class I, Division 2, Class I, Division 1 or Division 2, and Class I, Zone 0 or Zone 1 locations, including requirements for sealing, shall be permitted. In addition, cables approved for hazardous (classified) locations shall be permitted.

505-20. Equipment.

(a) Zone 0. In Class I, Zone 0 locations, only equipment specifically listed and marked as suitable for the location shall be permitted.

(b) Zone 1. In Class I, Zone 1 locations, only equipment specifically listed and marked as suitable for the location shall be permitted.

Exception: Equipment approved for use in Class I, Division 1 or Division 2 of Class I, Zone 0 locations of the same gas group and with similar temperature markings, if any, shall be permitted.

(c) Zone 2. In Class I, Zone 2 locations, only equipment specifically listed and marked as suitable for the location shall be permitted.

Exception: Equipment suitable for use in Class I, Division 1 or Division 2 of Class I, Zone 0 or Zone 1 locations of the same gas group and with similar temperature markings, if any, shall be permitted.

505-25. Grounding and Bonding. Grounding and bonding shall comply with Article 250 and Section 501-16. (ROP 14-5)

ARTICLE 510 — HAZARDOUS (CLASSIFIED) LOCATIONS — SPECIFIC

510-1. Scope. Articles 511 through 517 cover occupancies or parts thereof where Class I, Division 1, or Division 2, or Class I, Zone 0 or Zone 1 locations of the same gas group and with similar temperature markings, if any, shall be permitted.

510-2. General. The general rules of this Code shall apply to electric wiring and equipment in occupancies within the scope of Articles 511 through 517, except as such rules are modified in those articles. Where unusual conditions exist in a specific occupancy, the authority having jurisdiction shall judge with respect to the application of specific rules.
Committee Reference File

ID Number 2035
Acronym EEC-AAA
Committee Type Technical Committee

Staff Liaison Mark C. Ode
Committee Chairman R. F. Schwab
CC Acronym CC Chairman
TC Acronym TC Chairman

Name Electrical Equipment in Chemical Atmospheres
Name 2

Scope This Committee shall have primary responsibility for documents on (1) develop data on the properties of chemicals enabling proper selection of electrical equipment for use in atmospheres containing flammable gases, vapors or dusts; (2) make recommendations for the prevention of fires and explosions through the use of continuously purged, pressurized, explosion-proof, or dust-ignition-proof electrical equipment when installed in such chemical atmospheres.

Responsibility Responsible for Purged and Pressurized Enclosures for Electrical Equipment in Hazardous Locations (NFPA 496), Classification of Class I Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas (NFPA 497A), Classification of Class II Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas (NFPA 497B), and Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous (Classified) Locations (NFPA 497M).

Notes

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 875 of 1861
NFPA 496
Standard for
Purged and Pressurized Enclosures for Electrical Equipment
1993 Edition

1-1 Scope. This standard shall apply to purging and pressurizing:
(a) Electrical equipment located in areas classified as hazardous by Article 500 of NFPA 70, National Electrical Code, and
(b) Electrical equipment containing sources of flammable vapors or gases and located in either classified or non-classified areas.
(c) Control rooms or buildings located in areas classified as hazardous by Article 500 of NFPA 70, and
(d) Analyzer rooms containing sources of flammable vapors or gases and located in areas classified as hazardous by Article 500 of NFPA 70, National Electrical Code.

1-2 Purpose. This standard is intended to provide information on the methods for purging and pressurizing enclosures to prevent ignition of a flammable atmosphere. Such an atmosphere may be introduced into the enclosure by a surrounding external atmosphere or by an internal source. By these means, electrical equipment that is not otherwise acceptable for a flammable atmosphere may be utilized in accordance with Article 500 of NFPA 70, National Electrical Code.

1-3 Applicability. This standard shall apply to electrical instrument and process control equipment, motors, motor controllers, electrical switchgear, and similar equipment that are installed in Class I or Class II locations and that do not contain an internal source of flammable vapor, gas, or liquid.

1-3.2 Chapter 5 of this standard shall apply to control rooms that are located in Class I or Class II locations and that do not contain an internal source of flammable vapor, gas, or liquid.

1-3.3 Chapter 6 of this standard shall apply to electrical instrument and process control equipment and similar enclosed equipment, such as a gas chromatograph or a gas analyzer, that do contain an internal source of flammable vapor, gas, or liquid.

1-3.4 Chapter 7 of this standard shall apply to analyzer rooms and buildings.

1-4 Degree of Fire or Explosion Hazard. There are two degrees of hazard for Class I or Class II locations:
(a) Division 1, or normally flammable, combustible, or ignitable [NFPA 497A, Recommended Practice for Classification of Class I Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas, recognizes that an ignitable mixture is likely to be present continuously or intermittently under normal conditions of operation, repair, maintenance, or leakage]
(b) Division 2 or flammable, combustible, or ignitable only under abnormal conditions.

1-5 Definitions. For the purpose of this standard, the following terms shall have the meanings given below.

Alarm. A piece of equipment that generates a visual or audible signal that attracts attention.

Analyzer Room or Building. A specific room or building containing analyzers, one or more of which is piped to the process.

Approved. Acceptable to the "authority having jurisdiction."

NOTE: The National Fire Protection Association does not approve or certify any installations, procedures, equipment, or materials nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authorities having jurisdiction may have acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authorities may require evidence of proper installation, procedure, or use. The authorities having jurisdiction may refer also to the listing or labeling practices of an organization concerned with product evaluations which is in a position to determine compliance with appropriate standards for the current production of listed items.

Authority Having Jurisdiction. The "authority having jurisdiction" is the organization, office or individual responsible for "approving" equipment, its installation or a procedure.

NOTE: The phrase "authority having jurisdiction" is used in NFPA documents in a broad manner since jurisdictions and "approval" agencies vary as do their responsibilities. Where public safety is primary, the "authority having jurisdiction" may be a federal, state, local or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department, health department, building official, electrical inspector, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the "authority having jurisdiction." In many circumstances the property owner or his designated agent assumes the role of the "authority having jurisdiction" at government installations, and the commanding officer or departmental official may be the "authority having jurisdiction."

Class I, Division 1. A Class I, Division 1 location is a location: (1) in which ignitable concentrations of flammable gases or vapors can exist under normal operating conditions; or (2) in which ignitable concentrations of such
NFPA 497A
Recommended Practice for
Classification of Class I Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas

1992 Edition

Information on referenced publications can be found in Chapter 4 and Appendix A.

Chapter 1 General

1-1 Scope.

1-1.1 This recommended practice applies to those locations where flammable gases or vapors, flammable liquids, or combustible liquids are processed or handled and where their release into the atmosphere may result in their ignition by electrical systems or equipment.

1-1.2 This recommended practice applies to chemical process areas. As used in this recommended practice, a chemical process area may be a large integrated chemical process plant or it may be a part of such a plant. It may be a part of a manufacturing facility where flammable gases or vapors, flammable liquids, or combustible liquids are produced or used in chemical reactions or are handled or used in certain unit operations such as mixing, filtration, coating, spraying, distillation, etc.

1-1.3 This recommended practice does not apply to situations that may involve catastrophic failure of or catastrophic discharge from process vessels, pipelines, tanks, or systems.

1-1.4 This recommended practice does not apply to situations involving enriched oxygen atmospheres. It also does not apply to situations involving pyrophoric materials.

1-1.5 This recommended practice is not intended to supersede or conflict with applicable requirements of the following:

NFPA 30, Flammable and Combustible Liquids Code;
NFPA 33, Standard for Spray Application Using Flammable and Combustible Materials;
NFPA 34, Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids;
NFPA 35, Standard for the Manufacture of Organic Coatings;
NFPA 36, Standard for Solvent Extraction Plants;
NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals;
NFPA 50A, Standard for Gaseous Hydrogen Systems at Consumer Sites;

NFPA 50B, Standard for Liquefied Hydrogen Systems at Consumer Sites;
NFPA 58, Standard for the Storage and Handling of Liquefied Petroleum Gases; and
NFPA 59A, Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG).

1-2 Purpose.

1-2.1 It is the intent of this recommended practice to provide the user with a basic understanding of the parameters that determine the degree and the extent of the hazardous (classified) location. This recommended practice also provides the user with examples of the application of these parameters.

1-2.2 This recommended practice is intended as a guide and should be applied with sound engineering judgment. When all factors are properly evaluated, a consistent area classification scheme can be developed.

1-3 National Electrical Code® Criteria. This recommended practice is based on the criteria established by Article 500 of NFPA 70, National Electrical Code, but is not intended to supersede or conflict with the requirements therein. Once an area is properly classified, the National Electrical Code® specifies the type of equipment and the wiring methods that may be used.

Chapter 2 Basic Considerations

2-1 National Electrical Code Criteria.

2-1.1 Article 500 of NFPA 70, National Electrical Code, designates as hazardous (classified) any location in which a combustible material is or may be present in the atmosphere in sufficient concentration to produce an ignitable mixture. Article 500 defines three major categories of hazardous location:

(a) Class I, in which the combustible material is a gas or vapor;
(b) Class II, in which the combustible material is a dust;
(c) Class III, in which the combustible material is a fiber or flying.

This recommended practice is limited to Class I hazardous (classified) locations.

2-1.2 The intent of Article 500 is that electrical equipment and systems in hazardous (classified) locations should not provide a means of ignition for an ignitable mixture that may be present.

2-1.3 Within each class, Article 500 recognizes two degrees of hazard: Division I and Division II. In Division 1, an ignitable mixture is likely to be present continuously or intermittently under normal conditions of operation, repair, maintenance, or leakage. In Division 2, an ignitable mixture is likely to be present under abnormal operating conditions, such as failure of process equipment.
NFPA 497B
Recommended Practice for the
Classification of Class II Hazardous
(Classified) Locations for Electrical
Installations in Chemical Process Areas
1991 Edition

NOTICE: An asterisk (*) following the number or letter
designating a paragraph indicates explanatory material on
that paragraph in Appendix A.
Information on referenced publications can be found in
Chapter 6 and Appendix B.

Chapter 1 General

1-1 Scope.
1-1.1 This recommended practice applies to those loca-
tions where combustible dusts are produced, processed, or
handled and where dust released into the atmosphere or
accumulated on surfaces may be ignited by electrical sys-
tems or equipment.

1-1.2 It also applies to chemical process areas. As used in
this recommended practice, a chemical process area may
be a chemical process plant, or it may be a part of such a
plant. It may be a part of a manufacturing facility where
combustible dusts are produced or used in chemical reac-
tions or are handled or used in operations such as mixing,
coating, extrusion, conveying, drying, grinding, etc.

1-1.3 This recommended practice does not apply to situ-
atons that may involve catastrophic failure of, or cata-
strophic discharge from, silos, process vessels, pipelines,
tanks, hoppers, or conveying or elevating systems.

1-1.4 It does not apply to agricultural grain handling
facilities except where powdered grain is used in a chemi-
ical reaction or mixture.

1-1.5 It does not apply to situations involving enriched
oxygen atmospheres. It also does not apply to situations
involving pyrophoric materials.

1-1.6 This recommended practice is not intended to
supersede or conflict with applicable requirements of the
following NFPA dust standards:
NFPA 36, Solvent Extraction Plants
NFPA 61A, Manufacturing and Handling Starch
NFPA 61B, Grain Elevators and Facilities Handling Bulk
Raw Agricultural Commodities

NFPA 61C, Feed Mills
NFPA 61D, Milling of Agricultural Commodities for Human
Consumption
NFPA 65, Processing and Finishing of Aluminum
NFPA 68, Venting of Deflagrations
NFPA 69, Explosion Prevention Systems
NFPA 85E, Pulverized Coal-Fired Multiple Burner Boiler-
Furnaces
NFPA 85F, Pulverized Fuel Systems
NFPA 650, Pneumatic Conveying Systems for Handling Com-
bustible Materials
NFPA 651, Manufacture of Aluminum and Magnesium
Powder
NFPA 654, Chemical, Dye, Pharmaceutical, and Plastics
Industries
NFPA 655, Sulfur Fires and Explosions
NFPA 664, Wood Processing and Woodworking Facilities

1-2 Purpose.
1-2.1 It is the intent of this recommended practice to pro-
vide the user with a basic understanding of the parameters
that determine the degree and extent of the hazardous
classification location. This document also provides the user
with examples of the application of these parameters.

1-2.2 This recommended practice is intended as a guide
and should be applied with sound engineering judgment.
When all factors are properly evaluated, a consistent area
classification scheme can be developed.

1-3 National Electrical Code® (NEC®).
1-3.1 This recommended practice is based on the criteria
established by Articles 500 and 502 of NFPA 70, National
Electrical Code. Once an area is properly classified, the NEC
specifies the type of equipment and the wiring methods
that may be used.

1-4 NFPA 497M.
1-4.1 NFPA 497M, Classification of Gases, Vapors, and Dusts
for Electrical Equipment in Hazardous ( Classified ) Locations,
provides information for determining if a dust is combusti-
ble based on the ignition sensitivity and explosion severity
concepts specified in Classification of Combustible Dust in
Conformance with the National Electrical Code, National Materi-
als Advisory Board Publication 353-3.
NOTE: The phrase “authority having jurisdiction” is used in NFPA documents in a broad manner since jurisdictional and “approval” agencies vary as do their responsibilities. Where public safety is primary, the “authority having jurisdiction” may be a federal, state, local or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department, health department, building official, electrical inspector, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company’s representative may be the “authority having jurisdiction.” In many circumstances the property owner or his designated agent assumes the role of the “authority having jurisdiction” at government installations, the commanding officer or departmental official may be the “authority having jurisdiction.”

Autoignition Temperature. The minimum temperature required to initiate or cause self-sustained combustion of a solid, liquid, or gas independent of the heating or heated element. [See NFPA 725M, Fire Hazard Properties of Flammable Liquids, Gases, and Volatile Solids.]

Class I, Division 1. A location (1) in which ignitable concentrations of flammable gases or vapors exist under normal operating conditions or (2) in which ignitable concentrations of such gases or vapors may exist frequently because of repair or maintenance operations or because of leakage; or (3) in which breakdown or faulty operation of equipment or processes might release ignitable concentrations of flammable gases or vapors and might also cause simultaneous failure of electrical equipment. [See Section 500-8(d) of NFPA 70, National Electrical Code.]

Class I, Division 2. A location (1) in which volatile flammable liquids or flammable gases are handled, processed, or used, but in which the liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of such containers or systems, or in case of abnormal operation of equipment; or (2) in which ignitable concentrations of gases or vapors are normally prevented by positive mechanical ventilation, and which might become hazardous through failure or abnormal operation of the ventilating equipment; or (3) that is adjacent to a Class I, Division 1 location, and to which ignitable concentrations of gases or vapors might occasionally be communicated unless such communication is prevented by adequate positive-pressure ventilation from a source of clean air and effective safeguards against ventilation failure are provided. [See Section 520-3(b) of NFPA 70, National Electrical Code.]

Class II, Division 1. A location (1) in which combustible dust is in the air under normal operating conditions in quantities sufficient to produce explosive or ignitable mixtures; or (2) where mechanical failure or abnormal operation of machinery or equipment might cause such explosive or ignitable mixtures to be produced and might also provide a source of ignition through simultaneous failure of electrical equipment, operation of protection devices, or from other causes; or (3) in which combustible dusts of an electrically conductive nature may be present in hazardous quantities. [See Section 506(d)(6) of NFPA 70, National Electrical Code.]

Class II, Division 2. A location where combustible dust is not normally in the air in quantities sufficient to produce explosive or ignitable mixtures, and dust accumulations are
February 23, 1995

Ms. Leona A. Nisbet,  
Recording Secretary, Standards Council  
National Fire Protection Association  
1 Batterymarch Park  
P.O. Box 9101  
Quincy, MA 02269-9101

Dear Ms. Nisbet:

Subject: Standard Council letter dated Feb. 9, 1995  
NEC and EECA related matters

I have received the February 9, 1995, Standards Council reply to my recent request to clarify the responsibility for group material classifications and appreciate the Council’s consideration of this matter. However, the ruling is not clear and has not resolved my inquiry.

As we discussed on February 15, 1995, and at your suggestion, I contacted the newly appointed assistant to Mr. Cote, Mr. C.C. Grant, seeking clarification of the Council’s position. Mr. Grant also was not able to explain the Council’s position. However in his new position, Mr. Grant indicated that he will be addressing resolution of the “classification” issues and expects to have his first internal NFPA meeting on this subject on February 28, 1995. He also asked me to provide him with some information to aid in this work, which is included below.

Notwithstanding, I was looking for the Standard Council to issue a simple response that might be in the following format:

Pertaining to the issue of group classification, Panel 14 of the National Electrical Code is responsible for Class, and division definitions and for the establishment of 7 groups (Groups A, B, C, D, E, F, and C). The EECA Committee is responsible for defining these Groups, as well as the chemicals, compounds or other materials that may reside in each group. Additionally the EECA Committee is responsible for resolving issues resulting from the introduction of other types of classification designations that may become part of the NEC at some future date.

To illustrate the nature of the issue and for support for this example reply, consider that the purpose of NFPA 70 (NEC), provides for the practical safeguarding of persons and property from hazards arising from the use of electricity. NEC Articles 500 through 504 cover the requirements for electrical equipment and wiring for all voltages in locations where fire or explosion hazards may exist due to flammable gases or vapors, flammable liquids, combustible dust, or ignitable fibers or flyings. NEC Section 500-2 provides that locations be classified depending on the properties of the flammable

Page 1 of 2
vapors, liquids or gases, or combustible dusts or fibers that may be present and the likelihood that a flammable or combustible concentration or quantity is present. NEC fine print notes provide references to other documents, such as NFPA 497A, 30, 32, 36, and 58 (to name just a few) to address the implementation aspects of the “classification” process. NEC section 500-3 (a), establish “Class I Groups” and provide “examples” of materials within each group. However, a fine print note provides that for additional information on the properties and group classification of Class I materials, see NFPA documents 497M and 325M. (Note: It should be indicated that lacking a single centralized physical property data base, these references can have different property information for the same chemical. This provides another, of many reasons, why NFPA must have a single, centralized physical property database).

Thus it can easily be seen that:

a) the NEC establishes the area or location “Electrical Classification” process.
b) the “extents” of the application of the NEC definitions of Class and Division are handled outside Articles 500-504 and rely on numerous other NFPA documents. (Note: Some of documents provide conflicting information without apparent technical rational. Thus a NFPA need exists to bring all classification "extent" issues into a single committee/working group jurisdiction.)
c) assessment of chemical or materials involved in the NEC classification process are also accomplished outside the NEC, primarily using NFPA 497M, whose scope is defined as a "manual [which] provides information on specific flammable gases, flammable and combustible liquids, and combustible dusts whose relevant combustion properties have been identified sufficiently to allow their classification into the groups established by the National Electrical Code for proper selection of electrical equipment in hazardous (classified) locations." (NFPA 325 is also referenced in the NEC but it has a different scope and has data (AIT data) which in cases conflicts with NFPA 497M.)

With the important and needed introduction of the Article 505, which incorporates some of the IEC classification procedures, a new set of chemical “arrangements” is introduced. Instead of the traditional NEC Groups A, B, C, etc., are “Groups II.A, IIB, etc. Which NFPA Committee will resolve issues like, how do materials now found under Group C relate to the new designations, and how should carbon disulfide which is excluded in the traditional NEC groups but exists in new group designation, IIC, be handled? The timely decision rendered by the Standards Council will directly impact this work.

I hope that this additional information will aid the Standards Council in resolving the issue presented. I also hope that consideration be given against printing for public record, the February 6, letter that was sent to me, for the reasons stated above.

Again, if I can provide any assistance, please contact me.

Sincerely yours,

David Wechsler
Phone (304)-747-5175
CC: C.C. Grant at NFPA
April 27, 1995

Mr. David Wechsler
Union Carbide Corporation
P.O. Box 8361
South Charleston, WV 25303

Dear Mr. Wechsler:

At its meeting on April 12, 1995, the Standards Council considered your request regarding clarification of responsibility for group classification of materials.

Attached is the decision of the Standards Council on this matter.

Very truly yours,

Arthur E. Cote, P.E.
Secretary, Standards Council
and Chief Engineer

AEC/djb

Attachment 95-6
D#95-15

Members, TC on Electrical Equipment in Chemical Atmospheres
Members, National Electrical Code Panel 14
Member, National Electrical Code Technical Correlating Committee
Members, Standards Council

Publishers of the National Fire Codes® and National Electrical Code®
Decision of the Standards Council on the Request of D. Wechsler, Union Carbide Corporation, Regarding Group Material Classifications

The Council on April 12, 1995 considered the request of D. Wechsler, Union Carbide Corporation regarding clarification of responsibility for group classification of materials, and whether this matter should be addressed by the National Electrical Code® project or by the Technical Committee on Electrical Equipment in Chemical Atmospheres.

Attending a hearing on the complaint was D. Wechsler, Union Carbide Corporation. At the hearing, the complainant provided rationale that the group classification of materials used for electrical equipment in hazardous locations should reside with the Technical Committee on Electrical Equipment in Chemical Atmospheres, although the structure itself should be set by the National Electrical Code. The National Electrical Code presently addresses the structure of the group classifications, and outlines some of the various materials in each group based on a representative sample of typical chemicals in each group as found in NFPA 497M, Manual for Classification of Gases, Vapors, and Dusts for Electrical Equipment in Hazardous Locations. Furthermore, the complainant indicated that the Technical Committee on Electrical Equipment in Chemical Atmospheres has the responsibility for the test methods that define the chemical atmospheres in each group and has established this information in NFPA 497M.

After the hearing, the Council reviewed and considered all of the information available to it regarding the complaint and voted to reaffirm and clarify that the National Electrical Code has the authority to establish classifications, divisions, and group structure. The Technical Committee on Electrical Equipment in Chemical Atmospheres has the authority to classify chemical hazards into the appropriate Groups, including the criteria providing the basis for group structure such as test methods for determining the chemical atmospheres.

The Council noted that the National Electrical Code outlines the chemical atmospheres for each particular group as set forth by NFPA 497M and recognizes that these requirements are included in the National Electrical Code instead of simply referencing NFPA 497M, since it is necessary for the National Electrical Code to establish the groups in enforceable language. The Council also noted that the responsibility for establishing the groups originated in the National Electrical Code in 1937.

SC 95-6
D#95-15
MEMORANDUM

TO: L. A. Nisbet
FROM: M. W. Earley
DATE: July 9, 1993
SUBJECT: Hazardous Locations in the National Electrical Code

To confirm our previous discussion, hazardous locations were first defined in article 32 of the 1923 National Electrical Code. They were defined as "Extra-Hazardous Locations". The definition was:

"Extra-Hazardous Locations shall comprise rooms or compartments in which highly inflammable gases, liquids, mixtures or other substances are manufactured, used or stored in other than original containers".

The 1923 code also contained an article on garages. There were no definitions of divisions nor was there any criteria on the extent of a hazardous location.

In the 1928 code, the three classes were first defined. The definition for Class I Locations was:

"Class I Locations are those in which flammable volatile liquids, highly flammable gases, mixtures or other highly flammable substances are manufactured, used, handled, or stored in other than their original containers." A Fine Print Note stated "This class may include such locations as some parts of dry-cleaning and dry-dyeing plants, pyroxylin plastic manufacturing plants, spray painting establishments, gas plants, varnish manufacturing plants, and establishments or industries involving similar hazardous processes or conditions."

The concept of divisions first appeared in the 1947 edition of the NEC. The definitions of Division 1 and Division 2 have evolved through several revisions over the years.

I hope this information is helpful. If you have any questions, please contact me.
National Fire Protection Association
International
Executive Offices
1 Batterymarch Park
P.O. Box 9101
Quincy, Massachusetts 02269-9101 USA
Telephone (617) 770-3000 Fax (617) 770-0700

Leona Attenasio Nisbet, Director
Standards Administration

December 6, 1994

Mr. R. F. Schwab
Allied-Signal Inc.
Engineered Materials Sector
PO Box 1139R
Morristown, NJ 07962-1139

Mr. Richard J. Buschart
14644 Fairfield Farm Drive
Chesterfield, MO 63017

Dear Messrs. Schwab and Buschart:

Enclosed is a copy of a letter received from D. Wechsler, Union Carbide, on December 5, 1994, requesting that NFPA clarify to CMP 14, that while an issue was discussed in an EECA Committee meeting, no formal committee position was taken. That has been done as indicated in the attached letter to CMP 14.

The second part of the letter requests that the Council reaffirm that responsibility for group classification of materials assigned to the EECA Committee and that the NEC Correlating Committee be directed to correlate with EECA with respect to any new and modified reference to group classification of materials in Article 500.

The Council will consider this issue at its meeting on January 11-13, 1995. If you or any member of your Committee have any comments that would be helpful to the Standards Council in considering this complaint, the Council would be grateful for your input. Please forward any information to me by December 16, 1994. Also, if you or any member of the Committee wishes to be in attendance to address the Council on this issue, please let me know by December 16, 1994.

Thank you for your assistance.

Sincerely,

Leona A. Nisbet, Recording Secretary
Standards Council

LAN/djb

c: Members, TC on Electrical Equipment in Chemical Atmospheres
    Members, Chair, National Electrical Code Panel 14
    Members, NEC Technical Correlating Committee

Publishers of the National Fire Codes® and National Electrical Code®
National Fire Protection Association
International

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Leona Attensio Nisbet, Director
Standards Administration

December 6, 1994

Mr. David Wechsler
Union Carbide Corporation
P.O. Box 8361
South Charleston, WV 25303

Dear Mr. Wechsler:

This will acknowledge your letter of November 21, 1994.

The first part of your letter requested that NFPA clarify to CMP 14, that while an issue was discussed in an EECA Committee meeting, no formal committee position was taken. That has been done as indicated in the attached letter to CMP 14.

The second part of your letter requests that the Council reaffirm that responsibility for group classification of materials assigned to the EECA Committee and that the NEC Correlating Committee be directed to correlate with EECA with respect to any new and modified reference to group classification of materials in Article 500.

This request will be brought to the Standards Council at its January 11-13, 1995 meeting.

If you wish to be in attendance to address the Council on this issue, please let me know by December 16, 1994.

Very truly yours,

Leona Attensio Nisbet, Recording Secretary
Standards Council

LAN/djb

c: R. F. Schwab, Chair, TC on Electrical Equipment in Chemical Atmospheres
R. J. Buschart, Chair, National Electrical Code Panel 14
D. H. Ware, Chair, NEC Technical Correlating Committee
March 1, 1995

Mr. David Wechsler
Union Carbide Corporation
Health, Safety and Environmental Technology
P.O. Box 8361
South Charleston, WV 25303

Dear David:

This is a follow-up to my February 28, 1995 letter to you regarding the subject of group material classifications.

The Council will consider this issue at 10:00 a.m. on April 12, 1995 at the Sheraton Station Square Hotel, 7 Station Square Drive, Pittsburgh, PA 15219, 412/261-2000.

It would be helpful if you could attend the Council meeting to assist in the clarification of this issue. Please let me know if you wish to be in attendance to make a presentation to the Council.

Very truly yours,

[Signature]
Leoná Attenasio Nisbet, Recording Secretary
Standards Council

LAN/djb

C: R. P. Fleming, A. E. Cote, C. C. Grant, M. C. Ode, M. W. Earley
National Fire Protection Association
International
Executive Offices
1 Batterymarch Park
P.O. Box 9101
Quincy, Massachusetts 02269-9101 USA
Telephone (617) 770-3000 Fax (617) 770-0700

Leona Attenasio Nisbet, Director
Standards Administration

February 28, 1995

Mr. David Wechsler
Union Carbide Corporation
Health, Safety and Environmental Technology
P.O. Box 8361
South Charleston, WV 25303

Dear David:

This will acknowledge receipt of your February 23, 1995 letter requesting that the Standards Council clarify its decision regarding the responsibility for group material classifications.

Your request will be brought to the Council at its upcoming April 12-13, 1995 meeting.

Very truly yours,

Leona Attenasio Nisbet, Recording Secretary
Standards Council
LAN/djb

cc: Members, TC on Electrical Equipment in Chemical Atmospheres
    Members, National Electrical Code Panel 14
    Members, NEC Technical Correlating Committee
    R. P. Fleming, A. E. Cote, C. C. Grant, M. C. Ode, M. W. Earley
Leona Attenasio Nisbet, Director
Standards Administration

February 9, 1995

Mr. David Wechsler
Union Carbide Corporation
P.O. Box 8361
South Charleston, WV 25303

Dear Mr. Wechsler:

This is to notify you that in response to your complaint requesting that the Council clarify that responsibility for group classification of materials is assigned to the Technical Committee on Electrical Equipment in Chemical Atmospheres, the Council voted that the National Electrical Code has the authority to establish the classification. The National Electrical Code defines the area classifications. The Technical Committee on Electrical Equipment in Chemical Atmospheres would classify chemical hazards into the appropriate categories. The criterion of area classification and chemical hazard category (group) is the basis for equipment selection. The occupancy standards would address the need for a particular classification within portions of their occupancies.

I hope this ruling by the Council clarifies this issue.

Very truly yours,

Leona Attenasio Nisbet, Recording Secretary
Standards Council

LAN/djb

cc: Members, TC on Electrical Equipment in Chemical Atmospheres
    Members, National Electrical Code Panel 14
    Members, NEC Technical Correlating Committee
    A. E. Cote, C. C. Grant, M. C. Ode, M. W. Earley

95-6
NITMAM Log 70-36
Supplement June 30, 2013 Appeal

David Wechsler,
American Chemistry Council
July, 2013
NITMAM Log 70-36

• Recall-
  – NITMAM/CAM 70-36 deals with Comment 14-56 and CMP-14 Proposal 14-200a, which created a new section 506.6 titled “Material Groups.

• We believe that the Proposal action creates significant unintended consequences and therefore needs to be tabled to permit NFPA “dust” experts to address this complex issue.

• It is our opinion that the Proposal action does not follow fundamental findings stated by the NFPA Standard Council in Jan. 1995, 95-5 Ruling.

• We believe that the Proposal action violates the NEC Style Manual, 3.1.3 which provides that ...**Informational Notes shall not be written in mandatory language and shall not contain requirements, make interpretations, or make recommendations.**

• We strongly request that the NFPA Standards Council take actions to Table this proposal and cause NFPA “dust” experts to address this complex issue by providing appropriate revisions for the next NEC code cycle.
Proposal Creates new Article

506.6 Material Groups

- Stating “For the purposes of testing, approval, and area classification, various air mixtures (not oxygen enriched) shall be grouped as required in 506.6(A), (B), and (C).
NITMAM Log 70-36

Issue:
Proposed 506.6 (A) provides “Group IIIC Combustible Metal Dust” and an “Informational note: ‘Group IIIC is equivalent to Class II, Group E as described in 500.6 (B)(1).’”

Concern:
• A requirement in the NEC code needs to be enforceable and this term ‘Combustible Metal Dust’ is not defined in this Article.
• ‘Combustible Metal Dust’ is defined by NFPA 484 ‘Standard for Combustible Metals’ as ‘A combustible particulate metal that presents a fire or explosion hazard when suspended in air or the process specific oxidizing medium over a range of concentrations, regardless of particle size or shape.’
• This proposed new material group is ‘paired’ with a defined term Class II, Group E. NEC Article 500.6 (B) (1) contains this term, Group E shown as extracted from NFPA 499: 3.3.4.1. It states in a fully descriptive statement “Atmospheres containing combustible metal dusts, including aluminum, magnesium, and their commercial alloys, or other combustible dusts whose particle size, abrasiveness, and conductivity present similar hazards in the use of electrical equipment.” The NFPA 499 “Test” for combustible dust begins with testing under ASTM E-1226.
• There has been no supportive basis provided for this Informative Note that ‘Group IIIC is equivalent to Class II, Group E’, nor has there been any attempt to address the quantification of ‘equivalency’ nor how to apply a ‘description’ to this application.
• Per the NEC Style Manual, 3.1.3 provides that Informational notes shall not be written in mandatory language and shall not contain requirements, make interpretations, or make recommendations.
• NFPA 484 and NFPA 499 have different scopes, different technical committees and there is not yet any correlation committee overseeing these committees. NFPA does have an active work project developing NFPA 652 which may improve this condition.
NITMAM Log 70-36

Issue:

• Proposed 506.6 (B) provides “Group IIIB Combustible dust other than metal dust” and an “Informational note: ‘Group IIIB is equivalent to Class II, Groups F and G as described in 500.6(B)(2) and 500.6(B)(3), respectively.’”

Concern:

• If the requirement of this information note is correct, then NEC Class II, Group F and NEC Class II, Group G appear to be the same. The impact of this may for example mean that coal dust is now the same as sugar, agricultural, and chemical dusts. This change could have significant potential impact on designs of large numbers of industries as well as facilities and might even result in unsafe installations due to confusion stemming from this change.

• There has been no supportive basis provided that Class II Group F and Class II Group G are the ‘equivalent’ nor to address what the quantification of ‘equivalency’.
NITMAM Log 70-36

Issue:

• Proposed 506.6 (C) provides “Group IIIA “Solid particles, including fibers, greater than 500 μm in nominal size which may be suspended in air and could settle out of the atmosphere under their own weight

Informational Note 3- Group IIIA is equivalent to Class III.

Informational Note 4 - Examples of flyings include rayon, cotton (including cotton linters and cotton waste), sisal, jute, hemp, cocoa fiber, oakum, and baled waste kapok.”

Concern:

• NEC Article 500.5 (D) defines Class III as follows: Class III locations are those that are hazardous because of the presence of easily ignitible fibers or where materials producing combustible flyings are handled, manufactured, or used, but in which such fibers/flyings are not likely to be in suspension in the air in quantities sufficient to produce ignitible mixtures.

• The Article 500.5 (D) material is not likely to be suspended in air and therefore contrary to the Proposed 506.6 (C) material which would be suspended in air, these present mutually exclusive conditions. Additionally under NEC 500.5 (D) fibers or flyings are not addressed as solid particles. Proposed Group IIIC includes solid particles and fibers.

• There is no substantiation provided to support that the proposed Group IIIA ‘materials’ are equivalent to Class III materials defined in NEC Article 500.5 (D).
July 3, 2013

Standards Council  
National Fire Protection Association  
1 Batterymarch Park  
Quincy, Massachusetts 02169-7471

Reference: CAM 70-36 Appeal to NFPA Standards Council

I confirm my comments that were presented at the annual NFPA meeting on June 13, 2013 but will not reiterate them because I am sure the Council members already have that information.

Code-Making Panel 14’s proposal 14-200a harmonizes the definition of combustible dust Groups IIIC, IIIB and IIIA with the definitions developed as the US National Differences to the ANSI adoption of the IEC Zone requirements as found in UL/ISA 60079-0 and must be retained as proposed.

NEC CMP 14 did not work in isolation when it rejected Comment 14-56 during the comment phase of the 2014 NEC. Of the 25 principal and alternate members of CMP 14 at least 10 members are also members of various committees and associations dealing with combustible dust. It is my understanding that CMP 14 member Mr. Bill Fiske may be appointed as the next Chairman of the Committee on Electrical Equipment in Chemical Atmospheres, responsible for 496, 497 and 499.

Mr. Dave Weschler was the only member of CMP 14 to vote negative on accepting Proposal 14-200a and he was the only panel member to vote negative on rejecting comment 14-56. Mr. Weschler was not in attendance at the ROP or ROC meetings.

Respectfully submitted by:

[Signature]

Robert A. Jones  
Chairman NEC Code Making Panel 14
From: "grayboy02@aol.com" <grayboy02@aol.com>
Date: July 21, 2013, 9:52:23 PM EDT
To: "Fuller, Linda" <lfuller@NFPA.org>
Subject: Re: Appeal to the Standards Council

Linda,

I have talked to Bill Fiske, the incoming EECA chairman, and have also read his response and I agree with what he says.

In my opinion, the group classification system within NFPA 499 in Proposal 14-200a does not create a conflict with hazardous classification as outlined in NFPA 499 for dust layers or clouds on or around electrical equipment.

As referenced by Bill, NFPA 499 expressly states, in 1.2.5, This recommended practice does not address the criteria for classifying locations in accordance with Article 506 of the National Electrical Code.

Hopefully, this will clarify my position.

Regards
James

James G Stallcup
GRAYBOY, Inc.
817-581-2206
COMMITTEE ON ELECTRICAL EQUIPMENT IN CHEMICAL ATMOSPHERES COMMENTS ON APPEAL OF CAM Log 70-36
BY D. B. WECHSLER

1. NFPA 70 – 2014, 506.6 is based on an American National Standard, ANSI/ISA/UL 60079-0, for the material groupings (see Clause 4.3).

2. If it be correct to say that Standards Council Decision 95-6 gives the Committee on Electrical Equipment in Chemical Atmospheres responsibility for setting criteria for combustible material classification, then the EECA committee failed to discharge its responsibility as regards Zones 20, 21 and 22. Not only does NFPA 499 – 2013 fail to have provisions for Zones 20, 21 and 22, but also the scope of NFPA 499 expressly excludes NEC Article 506 (see 1.2.5).

3. Appellant’s statement of relief includes a request to put NFPA 499 into revision cycle ASAP. Both the outgoing Chair and the incoming Chair of EEC-AAA recommend at least one year’s use of the document before public input is allowed.

2013-07-22 William T. Fiske Chair, EEC-AAA
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 8, 2013

AMENDMENT (70-37)

Document: NFPA 70, National Electrical Code

Motion: To Accept Proposal 15-62 as Modified by the Technical Committee

CC PRELIMINARY Ballots due by July 15, 2013

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS/HAS NOT achieved the necessary \( \frac{3}{4} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is \( 12 \) (eligible to vote) – \( x \) (ballot not returned) – \( y \) (abstention) = \( z \) \times 0.75 = \( w \)

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___ Approve
___ Do Not Approve
___ Abstain

CC Action: PASS/FAIL

CMP 15 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment HAS achieved the necessary \( \frac{2}{3} \) majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 7 [14 (eligible to vote) – 4 (ballots not returned) – 0 (abstentions) = 10 \times 0.66 = 6.6]

14 Eligible to Vote
4 Not Returned (Gilbert, Krupa, Nash, Jr., Shelly)

10 Agree
0 Do Not Agree
0 Abstain

CMP Action: PASS
Proposal 15-62

15-62 Log #3468 NEC-P15  
Final Action: Accept in Principle (517.30(C)(3))

TCC Action: The Correlating Committee directs the panel to reconsider this proposal with respect to the Correlating Committee Action on Proposals 15-19 and 15-20. This action will be considered as a public comment.

Submitter: Technical Committee on Electrical Systems, Recommendation: Revise text to read as follows:

(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:

Substantiation: To Coordinate with NFPA 99. As a result of the August 10, 2011 Standards Council Decision (Final), D11-7, regarding the scope issues of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA space.

An excerpt from D11-7 states: “The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council refers to “without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be useful”.” (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.”

This proposal was balloted through the Technical Committee on Electrical Systems with the following results: 24 Members Eligible to Vote 7 Not Returned (Dagenais, Krupa, Lipster, Meade, Peterson, Smidt, and Wolff) 16 Affirmative on All 0 Negatives 0 Abstentions

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

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:

Panel Statement: The panel changed the word “rooms” to “spaces” to remain consistent with the panel action and statement on Proposal 15-19.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 10 Negative: 3

Ballot Not Returned: 1 Krupa, G.


NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nomenclature as requested by the proposer.

Ballot Results: Affirmative: 13

Related Proposals 15-19 and 15-20

15-19 Log #3279 NEC-P15  
Final Action: Accept in Principle (517.2, Patient Care Area)

TCC Action: The Correlating Committee directs the panel to reconsider this proposal with respect to the accuracy of the extracted material and the use of permissive language in the Informational Notes. Defined terms in this proposal shall be extracted from NFPA 99.

The Correlating Committee further directs that the panel ensure that where text is extracted from NFPA 99 it meets the requirements of 4.3.2.2 of the NEC 4.2.2 Style Manual.

In addition, it was the action of the Correlating Committee that further consideration be given to the comments expressed in the voting. This action will be considered as a public comment.

Submitter: Gary A. Beckstrand, Salt Lake City, UT

Recommendation: Revise text to read as follows:

Patient Care Area, Room. Any portion of a room of a health care facility wherein patients are intended to be examined or treated. Areas of a health care facility wherein patients are intended to be examined or treated include patient care areas or critical care areas. The governing body of the facility designates these areas in accordance with the type of patient care anticipated and with the following definitions of the area classifications [99:3.1.13].

Informational Note: Business offices, lounges, day rooms, dining rooms, or similar areas typically are not classified as patient care areas.

Basic Care Room: Room in which failure of equipment or a system is not likely to cause injury to the patients or caregivers but may cause patient discomfort.

General Care Room: Areas, Patient bedrooms, examining rooms, treatment rooms, clinics, and similar areas in which it is intended that the patient will come in contact with ordinary appliances such as a nurse call system, electric beds, examining lamps, telephones, and entertainment devices. [99:200]

Room in which failure of equipment or a system is likely to cause minor injury to patients or caregivers.

Critical Care Room: Areas, Those special care units, intensive care units, coronary care units, angiography laboratories, cardiac catheterization laboratories, delivery rooms, operating rooms, and similar areas in which patients are intended to be subjected to invasive procedures and connected to invasive monitoring equipment. Room in which failure of equipment or a system is likely to cause minor injury to patients or caregivers.

Support Room: Room in which failure of equipment or a system is not likely to have a physical impact on patients or caregivers.
SpaceRoom in which failure of equipment or a system is likely to cause major injury or death to patients or caregivers.

Support SpaceRoom in which failure of equipment or a system is not likely to have a physical impact on patients or caregivers.

Critical Care SpaceRoom in which patient care is administered are classified as general care areas or patient care areas.

Critical Care Room in which failure of equipment or a system is likely to cause major injury or death to patients or caregivers.

Support Room in which failure of equipment or a system is not likely to have a physical impact on patients or caregivers.

Routine household procedures and incidental spillage of liquids do not define a wet procedure location.

Wet Procedure Locations.

Routine housekeeping procedures and incidental spillage of liquids do not define a wet procedure location.

Informational Note No. 1: The governing body of the facility designates patient care areas in which the patient may come in contact with electromedical devices or ordinary appliances such as a nurse call system, electric beds, examining lamps, telephones, and entertainment devices.

Informational Note No. 2: General care spaces may include special care units, intensive care units, coronary care units, angiography laboratories, cardiac catheterization laboratories, delivery rooms, operating rooms, and similar areas in which patients are intended to be subjected to invasive procedures and connected to line operated, electromedical devices.

Informational Note No. 4: Spaces within a patient care room where a procedure is performed and that are normally subject to wet conditions while patients are present. These include standing fluids on the floor or draping of the work area, either of which condition is intimate to the patient or staff.

Routine household procedures and incidental spillage of liquids do not define a wet procedure location.

Informational Note 3: Critical care spaces in accordance with the type of patient care anticipated and with the definitions of the area classification. Business offices, corridors, lounges, day rooms, dining rooms, or similar areas typically are not classified as patient care rooms. [99.1.3.4.1.1]

Panel Statement: The Panel has determined that the term “room” has normally been defined as four walls and a door and is too restrictive for designers and will cause Code users confusion. The definition of critical care space has been corrected to be consistent with NFPA 99, Health Care Facilities Code. The submitter of the proposal has failed to provide any rationale for the change of the term “area” to “room.”

Number Eligible to Vote: 14

Ballot Results: Affirmative: 11 Negative: 2

BEEBE, C.: This proposal was very similar to 15-20 which was submitted by HEA-ELS. See my comment on that proposal.

NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nomenclature as requested by the proposer.

15-20 Log #3453 NEC-P15 Final Action: Accept in Principle (517.2.Patient Care Areas)

TCC Action: The Correlating Committee directs the panel to reconsider this proposal with respect to the accuracy of the extracted material. Defined terms in this proposal shall be extracted from NFPA 99.

The Correlating Committee further directs that the panel ensure that where text is extracted from NFPA 99 it meets the requirements of 4.3.2.2 of the NEC Style Manual. In addition, the action of the Correlating Committee that further consideration be given to the comments expressed in the voting.

This action will be considered as a public comment.

Submitter: Technical Committee on Electrical Systems, Recommendation: Revise text to read as follows:

Patient Care AreasRoom. Any portion of a health care facility wherein patients are intended to be examined or treated. Areas of a health care facility in which patient care is administered are classified as general care areas or critical care areas. A critical care room is defined by the facility design criteria and any additional ramifications of the critical branch and one or more circuits from the normal emergency system. A critical care room shall supply an outlet(s) only at that bed location. All branch circuits from the normal system shall be from a single panelboard-Emergency system Critical.

TCC Action: The Correlating Committee directs that the panel reconsider this proposal with respect to the Correlating Committee Action on Proposals 15-19 and 15-20.

This action will be considered as a public comment.

Submitter: Technical Committee on Electrical Systems, Recommendation: Revise text to read as follows:

(A) Patient Bed Location Branch Circuits. Each patient bed location room shall be supplied by at least two branch circuits, one from the emergency system and one from the normal system. A critical bed location room shall be supplied by at least one branch circuit from the emergency system. Critical branch circuit shall supply an outlet(s) only at that bed location. All branch circuits from the normal system shall be from a single panelboard-Emergency system Critical.
branch receptacles shall be identified and shall also indicate the panelboard and circuit number supplying them. The branch circuit serving patient bed locations shall not be part of a multi-wire branch circuit. Exception No. 1: Branch circuits serving only special-purpose receptacles or equipment in critical care areas shall not be part of a multi-wire branch circuit.

Substantiation: To Coordinate with NFPA 99. As a result of the August 10, 2011 Standards Council Decision (Final), D#11-7, regarding the scoping issues of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA 99.

An excerpt from D#11-7 states: “The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that “without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be Useful!” (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.

This proposal was balloted through the Technical Committee on Electrical Systems with the following results:
- 24 Members Eligible to Vote
- 7 Not Returned (Dagenais, Krupa, Lipster, Meander, Peterson, Smidt, and Wolff)
- 16 Affirmative on All
- 0 Negatives
- 0 Abstentions

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

Panel Meeting Action: Accept in Principle in Part

Revise text to read as follows:

(A) Patient Bed Location Branch Circuits. Each patient bed location shall be supplied by at least two branch circuits, one or more from the emergency system critical branch and one or more circuits from the normal system. At least one branch circuit from the emergency system critical branch shall supply an outlet(s) only at that bed location. All branch circuits from the normal system shall be from a single panelboard. Emergency system critical branch receptacles shall be identified and shall also indicate the panelboard and circuit number supplying them. The branch circuit serving patient bed locations shall not be part of a multi-wire branch circuit.

Exception No. 1: Branch circuits serving only special-purpose receptacles or equipment in critical care areas shall be permitted to be served by other panelboards.

Exception No. 2: Critical care spaces served from two separate transfer switches on the emergency system shall not be required to have circuits from the same panelboard.

Panel Statement: The Panel rejects changing the word “location” in the first sentence. CMP 15 rejects the replacement of the term “location” with “room” as the term “patient bed location” exists in NFPA 99 Health Care Facilities Code. The Panel changes the word “rooms” to “spaces” in Exception No. 1 and changes the words “locations” to “spaces” in Exception No. 2. The Panel accepts the other revisions. This action aligns with the Panel action on Proposal 15-19.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 11 Negative: 2

Ballot Not Returned: 1 Krupa, G.

Explanation of Negative:

BEEBE, C.: The American Society for Healthcare Engineering (ASH) of the American Hospital Association does not support the proposed changes by Panel 15 because it will create conflicts between documents. This proposal was submitted by the Technical Committee on Electrical Systems, a committee of NFPA 99, to modify the term “rooms” to “areas” or “spaces,” disrupts the continuity and will create conflict between the two documents. To avoid this potential conflict, the NFPA Standards Council defined a clear division of responsibilities between Panel 15 and the NFPA 99 technical committee in their decision on July 27, 2007, and reaffirmed in final decision D#11-7 dated August 10, 2011. The NFPA 70 Panel 15 committee is responsible for electrical installation requirements, whereas the committee on NFPA 99 Chapter 6, Electrical Systems is responsible for the performance, maintenance, and testing of electrical systems. The assignment of jurisdictional responsibilities is the direct responsibility of the Standards Council, but the Panel 15 committee failed to recognize this as evidenced by discussions and the decision to disregard the Council’s decision. Section 3.3.1.1 of the Regulations Governing Committee Projects requires that the work of the Technical Committees and Technical Correlating Committees shall be in accordance with any instructions subsequently issued by the Standards Council.

The authority to determine where the requirements apply belongs to NFPA 99, the performance standard for healthcare facilities. The justification in the Panel Statement is performance based and therefore the decision should fall under the authority of NFPA 99. It would be inappropriate to vote affirmative with the committee action on this proposal. This proposal should have been accepted and not accepted in principle.

NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nonenclature as requested by the proposer.

Related Proposal 15-61

Backup Proposal 15-61

15-61 Log #9291 NEC-P15 Final Action: Accept


The Correlating Committee will appoint a task group as requested by Panel 15.

Submitter: Richard E. Loyd, Sun Lakes, AZ

Recommendation: Reject the Proposal for insufficient substantiation.

Substantiation: The fact finding report file #E96627 dated January 10, 2012 presented to the committee at the Proposal meeting in Hilton Head, SC is incomplete and should not be considered as adequate substantiation to permit a new wiring method.

The same testing was inconsistent:

- The mechanical testing was only done on steel sheath and the fault current tests were only done on Aluminum sheath.
- UL 1569 does not specify the thickness of the metal tape sheath presumably because Article 330 does not permit Type MC cable to be used for physical protection. However, this proposal asks for this new type MC cable product to provide mechanical protection equal to EMT. Therefore, the type material (Steel or Aluminum) and the thickness of the metal tape sheath tested must be known to evaluate its suitability for the purpose.
- The fault current testing was only performed on Aluminum sheath. These tests should have been performed on both steel and aluminum and the thickness of the armor tape specified.

This proposed wiring method seems to be much heavier than standard Type MC Cable. Why were tension and pullout tests not included? Is additional securing and support needed in this application? It seems this should have been part of the evaluation when comparing it to EMT since circuits covered by 517.30(C) are often long vertical runs where this would be a factor. Article 330.30(D) allows supports to be omitted in some cases. Article 358 for EMT would require both the conductors and the tubing to be supported in a vertical run per 358.30 and 300.19. This must be a part of the evaluation for physical damage suitability equality.

This proposed Type MC cable has not been considered by CMP-7 as appropriate to be included under Article 330 or if a new Article number should be assigned to by CMP-7 if it is accepted. CMP-7 is the committee responsible for flexible wiring systems and provides expertise in cable wiring methods. This proposal should be submitted to that committee before being considered as an approved wiring method in Article 517.

Panel Meeting Action: Hold

Panel Statement: In accordance with 4.4.6.2.2 (c) of the Regulations Governing Committee Projects, the panel holds Proposal 15-61 and Comment 15-48 as the subject has a great level of complexity and cannot be properly dealt with in the time frame required for processing the report. This proposal should be reassigned to CMP 7. CMP 15 suggests that a task group be created between CMP 7 and CMP 15 to adequately deal with this subject matter.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 13 Negative: 1

Explanation of Negative:

TALKA, D.: This comment should have been acted on. The proposed wiring method has been under consideration for over 10 years. The comment adds no new information that wasn’t considered in the past. Either the panel must either accept or reject the wiring method.

Backup Proposal 15-61

15-61 Log #9291 NEC-P15 Final Action: Accept


The Correlating Committee will appoint a task group as requested by Panel 15.

Submitter: David Mercier, Southwire Company

Recommendation: Add a new 517.30(C)(3)(j)(3) as follows after item (2) and (3) and renumber the balance of section 517.30(C)(3): (2) Listed MC cable identified as providing crush, impact and penetration circuit protection performance comparable to electrical metallic tubing.

Substantiation: Type MC cable can be constructed to provide enhanced mechanical protection comparable to EMT while maintaining ground path integrity before, during and after installation. A follow-up Fact-Finding Report addresses the concerns about the types of conductors used in the original study.

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

Panel Meeting Action: Accept

Number Eligible to Vote: 14

Ballot Results: Affirmative: 12 Negative: 1

Ballot Not Returned: 1 Krupa, G.

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 902 of 1861
Explaination of Negative:
LIPSTER, S.: The panel should reject this proposal. The MC mentioned in the proposal is not available and its practical use cannot be ascertained through a fact finding report. It should be noted that the introduction of this report at the ROP meeting violated the regulations governing committee projects by not being submitted in a timely manner with the proposal.

Related Comment 15-49

15-49 Log #211 NEC-P15
(517.30(C)(3))
Final Action: Accept
Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 15-62
Recommendation: The Correlating Committee directs that the panel reconsider this proposal with respect to the Correlating Committee Action on Proposals 15-19 and 15-20.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Revise text to read as follows:
(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care rooms areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:
Panel Statement: The panel reconsiders its action and agrees with action taken on Proposal 15-19 and Proposal 15-20 to change to the word “space” instead of “room” or “area”. An editorial change was made to correct the word “spaces” to “space”.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 16
Not Returned: 7
Not Returned (Dagenais, Krupa, Lipster, Meade, Peterson, Smidt, and Wolff) 16
Affirmative on All
0 Negatives
0 Abstentions
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Accept in Principle
Revise text to read as follows:
(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care rooms areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:
Panel Statement: The panel changed the word “rooms” to “spaces” to remain consistent with the panel action and statement on Proposal 15-19.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 10
Negative: 3
Ballot Not Returned: 1
Affirmative on All
0 Negatives
0 Abstentions
Note: Supporting material is available for review at NFPA Headquarters.

Backup Proposal 15-62

15-62 Log #3468 NEC-P15
(517.30(C)(3))
Final Action: Accept in Principle
TCC Action: The Correlating Committee directs that the panel reconsider this proposal with respect to the Correlating Committee Action on Proposals 15-19 and 15-20.
This action will be considered as a public comment.
Submitter: Technical Committee on Electrical Systems,
Recommendation: Revise text to read as follows:
(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care rooms areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:
Substantiation: To Coordinate with NFPA 99. As a result of the August 10, 2011 Standards Council Decision (Final), D#11-7, regarding the scoping issues of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA 99.
An excerpt from D#11-7 states: “The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that “without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be Useful”. (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.”
This proposal was balloted through the Technical Committee on Electrical Systems with the following results:
24 Members Eligible to Vote
7 Not Returned (Dagenais, Krupa, Lipster, Meade, Peterson, Smidt, and Wolff)
16 Affirmative on All
0 Negatives
0 Abstentions
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Accept in Principle
Revise text to read as follows:
(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care rooms areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:
Panel Statement: The panel changed the word “rooms” to “spaces” to remain consistent with the panel action and statement on Proposal 15-19.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 10
Negative: 3
Ballot Not Returned: 1
Affirmative on All
0 Negatives
0 Abstentions
Note: Supporting material is available for review at NFPA Headquarters.

Explanation of Negative:
LIPSTER, S.: The NFPA 99 Electrical Systems Technical Committee did not follow the requirement of providing the exact extracted material from 2012 NPPA 99 6.4.2.2.6.4. As per the Standards Council decision, the coordination of the electrical requirements, material such as this are to be direct extractions from NFPA’s health care documents. The 2012 NFPA 99 Health Care Standard 6.4.2.2.6.4. “Mechanical Protection of the Life Safety and Critical Branches. The wiring of the life safety and critical branches shall be mechanically protected by raceways...” The language of the proposal should clearly coordinate with NFPA 99.
NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nonenclature as requested by the proposer.
Amy Beasley Cronin  
Secretary, Standards Council

20 September 2011

To: Interested Parties

Subject:

| Standards Council Decision (Final):   | D#11-7               |
| Standards Council Agenda Item:       | SC#11-8-6-a and 11-8-6-c |
| Date of Decision*:                   | 10 August 2011        |

Dear Interested Parties:

At its meeting of August 9-10, 2011, the Standards Council considered an appeal on the above referenced matter. On August 15, 2011, NFPA issued the Council’s decision on the appeal in the form of a “Short” decision which briefly stated the outcome of the appeal and which indicated that a full Final Decision on the appeal would be issued in due course and sent to all interested parties as soon as it became available.

The Council’s full Final Decision is now available and is attached herewith.

Sincerely,

Amy Beasley Cronin  
Secretary, NFPA Standards Council

c: D. Berry, M. Brodoff, L. Fuller, R. Bielen, J. Goyette, E. Carroll  
Members, Technical Correlating Committee on Health Care Facilities (HEA-AAC)  
Members, Technical Committee on Electrical Systems (HEA-ELS)  
Members, National Electrical Code Correlating Committee (NEC- TCC)  
Members, National Electrical Code Panel 13 (NEC-P13)  
Members, National Electrical Code Panel 15 (NEC-P15)  
Members, NFPA Standards Council (AAD-AAA)  
Individuals Providing Appeal Commentary
At its meeting of August 9-10, 2011, the Standards Council considered two appeals from Malcolm Allison from the National Electric Fuse Association (NEFA) on the 2012 edition of NFPA 99, *Health Care Facilities Code* as follows.

The first appeal requested that NFPA 99 be issued with the acceptance of Certified Amending Motion (CAM) 99-6, which sought to Return a Portion of a Report in the form of Proposals 99-39, 99-40 and 99-108 and related Comments 99-35, 99-36, 99-37, 99-123 and 99-124. Specifically, the CAM sought to return Section 4.4.2.2 to previous edition text and also return the following definitions to previous edition text: 3.3.26 Critical Branch, 3.3.29 Critical System, 3.3.41 Emergency System, 3.3.43 Equipment System, 3.3.96 Life Safety Branch, and 3.3.153 Quiet Ground.


The second appeal requested that NFPA 99 be issued with the acceptance of CAM 99-10 (which is a Related Motion to CAMs 99-11 through 99-14) to accept Comment 99-115, which sought to reject Proposal 99-107 that would delete the three proposed new sections providing requirements for selective coordination.

As background on the second appeal, the TC and the TCC accepted Committee Proposal 99-107 that would add three proposed new sections (4.4.2.1.2, 4.5.2.1.1, 4.6.2.1.1 [renumbered as 6.4.2.1.2, 6.5.2.1.1 and 6.6.2.1.1 in the 2012 edition]) providing requirements for selective coordination. Comment 99-115 recommended rejection of Proposal 99-107 and was rejected by the TC and TCC. A CAM seeking acceptance of CAM 99-10 which sought to delete the three proposed new sections providing requirements for selective coordination was made at the 2011 Association Technical Meeting (Tech Session). The motion failed.

Both appeals request that the Council overturn the actions that were recommended by the NFPA codes and standards development process. This recommendation represents the
consensus judgment of the responsible TC and TCC, a judgment that was also supported by votes of the NFPA membership at the 2011 Tech Session. The appellant has had the opportunity to advocate his position at each stage of the process and failed at every stage to achieve acceptance of his positions. On appeal, the Council accords great respect and deference to the NFPA codes and standards development process. In conducting its review, the Council will overturn the result recommended through that process only where a clear and substantial basis for doing so is demonstrated. The Council has reviewed the entire record concerning these matters and has considered all the arguments put forth in the appeals. In the view of the Council, these appeals do not present any clear and substantial basis on which to overturn the results yielded by the NFPA codes and standards development process. Accordingly, the Council has voted to deny both appeals. The effect of these actions is that the proposed new edition of NFPA 99 is issued with the modifications approved by the TC and TCC with respect to the items in CAM 99-6, and the document is also issued with the three proposed new sections providing requirements for selective coordination with respect to the items in CAM 99-10.

Without attempting to review each argument that the Council has considered and rejected as part of this appeal, the Council wishes to make several points. First, underlying this appeal is disagreement over whether the selective coordination provisions that are the subject of the appeals are within the jurisdiction of the NFPA 99 committee project or within the jurisdiction of the National Electrical Code® (NEC®) committee project. The assignment of jurisdictional scopes among technical committee projects is the direct responsibility of the Standards Council. See, generally, NFPA Regulations Governing Committee Projects (Reg) at Section 3.1. In assigning jurisdictional responsibilities among NFPA committees, the Council seeks to maximize coordination and avoid overlap and conflict among NFPA codes and standards. The Council has been aware of coordination issues between the NEC and other NFPA documents with respect to performance requirements for the life safety branch, critical branch and equipment system for emergency systems. In previous Council Decision No. 07-6 (SC#07-7-5-1, July 27, 2007), the Council established the Intercommittee Coordination Task Group on Emergency Electrical Systems to study these issues. The task group has provided useful guidance and recommendations to the relevant technical committees and the Council. (See Standards Council Minute Item 10-3-21, March 2010). Based on the input of the task group and on its own independent assessment, the Council has no difficulty in concluding that the prevention of cascading outages (achieving selective coordination) is a performance requirement belonging to NFPA 99, not an installation requirement within the jurisdiction of the NEC. The NFPA 99 committees, therefore, had the authority to develop the selective coordination performance requirements that have been challenged on this appeal.

Second, the appellant has requested that the Council add new sections in NFPA 99 to clarify that any part of the essential electrical system or any of its branches must comply with the relevant Articles of the NEC. The text proposed was not presented to the TC or the TCC in any form, including as a proposal or comment, therefore, the Council will not
consider the new text. The Council notes, however, the new edition of NFPA 99, Section 6.3.2.1 reads as follows:

6.3.2.1 Electrical installation. Installation shall be in accordance with NFPA 70®, *National Electrical Code*®.

Accordingly, the Council believes that NFPA 99 sufficiently refers to NFPA 70®, *National Electrical Code*®, for issues relating to installation, and that this deference is sufficiently clear. There was also a request to remove the word “installation” from the Purpose of NFPA 99 in Section 1.2. Again, this deletion was not presented to the TC or the TCC in any form, including as a proposal or comment, and the Council, therefore, will not consider the new text. The Council notes, however, that the word “installation” only appears in the chapter scope of Chapter 5, Gas and Vacuum Systems, and does not appear in the Chapter 6, Electrical Systems. It is clear that the word “installation” applies to the installation of gas and vacuum systems, and not the installation of electrical systems.

Third, the appellant, in various ways seeks to challenge NFPA’s compliance with the American National Standards Institute (ANSI) Essential Requirements (ANSI Essential Requirements.) ANSI is the oversight body for U.S. voluntary consensus standards developers such as NFPA, and the NFPA Regulations Governing Committee Projects (Regs) are approved by ANSI as meeting the ANSI Essential Requirements. It is through adherence to those Regs that NFPA ensures that the principles of openness, fairness and balance reflected in the ANSI Essential Requirements are met. It is difficult to locate in the submissions and presentations of the appellant any provision of the Regs that he contends has been violated. The Council, in any event, has reviewed the entire record before it and has found no violation of the Regs or indeed any unfairness that would implicate the ANSI Essential Requirements.

For example, the appellant spends much effort suggesting improprieties in the composition and activities of the Task Group on Inter-committee Coordination on Emergency Electrical Systems and its sub-groups. It is not clear how the activities of the task group are directly relevant to the appeal. The task group was entirely advisory, it had no decision-making authority, and it was clearly not a consensus body as defined by ANSI. Task groups often contribute input to standards development and there is no requirement that task groups meet any particular requirements such as balance requirements. Cf. Regs Section 3.1.3.4 (task groups need not be balanced by interest). In any case, the decisions with which the appellant takes issue were made, not by any task group, but by the TC and TCC and now by this Council.

Fourth, the appellant sought to have the Council accept NEFA’s newly submitted application for membership on the Technical Committee on Electrical Systems (HEA-ELS) in the NFPA 99 project. As background, another NEFA nominee’s application for this TC was considered at the October 2008 Standards Council meeting, and was rejected by the Council because the interest NEFA represents has only a limited interest in the total scope of the TC. An in-person reconsideration of this and other NEFA applications was heard by the Council in March 2009, and the respective decisions on the various TC applications for several NFPA TCs were reaffirmed. The new application from NEFA seeking membership on HEA-ELS will be reviewed and acted on in the normal course.
Finally, there has been the suggestion that the issues of intercommittee coordination merit the creation of a new task group to conduct further study. The Council does not, at this time, believe that creation of another task group is warranted. The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that “without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be useful”. (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.

Standards Council Members Jim Pauley and Dick Owen recused themselves during the hearing, deliberation and vote on these issues.
MINUTE ITEM 10-3-21

The Task Group on Inter-Committee Coordination on Emergency Electrical Systems provided its Report to the Council in August, 2009. Without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance in the report to be useful. The Task Group has provided some guidance to the Technical Committees in the form of two definitions as follows:

Performance Requirement. A specification of the manner in which equipment or a system is intended to function or operate.

Installation Requirement. A specification of the material and process associated with putting equipment in place and making it ready for use in accordance with performance requirements.

The NEC Staff took the recommendations from the report and created guidance for their Panels using the definitions from the Task Group and provided examples to illustrate the points as they relate to their respective documents. The Council requested that NFPA Staff, for the other relevant documents, create similar guidance for their respective Technical Committees. It should be clarified to the Technical Committees that if their document’s scope addresses performance, then the Technical Committee can only write performance requirements; and if their document’s scope addresses installation, then the Technical Committee can only write installation requirements. The Council directs NFPA Staff to report back to the Council in October 2010 with a report that shows the materials provided to the relevant Technical Committees.

The Task Group on Inter Committee Coordination on Emergency Electrical Systems was discharged by the Council with thanks.
TCC Action: The Correlating Committee directs the panel to reconsider this proposal with respect to the Correlating Committee Action on Proposals 15-19 and 15-20.

This action will be considered as a public comment.

Submitter: Technical Committee on Electrical Systems, Recommendation: Revise text to read as follows:

(3) Mechanical protection of the Emergency Essential Electrical System.

The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:

Substantiation: To Coordinate with NFPA 99. As a result of the August 10, 2011 Standards Council Decision (Final), D11-7, regarding the scopes issues of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA 99.

An excerpt from D11-7 states: “The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that "without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be Useful". (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.”

This proposal was balloted through the Technical Committee on Electrical Systems with the following results:

24 Members Eligible to Vote
7 Not Returned (Dagenais, Krupa, Lipster, Meade, Peterson, Smidt, and Wolff)
16 Affirmative on All
0 Negatives
0 Abstentions

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

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

(3) Mechanical protection of the Emergency Essential Electrical System.

The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:

Panel Statement: The panel changed the word “rooms” to “spaces” to remain consistent with the panel action and statement on Proposal 15-19.

Number Eligible to Vote: 14
Ballot Results: Affirmative: 10 Negative: 3
Ballot Not Returned: 1 Krupa, G.

Explanation of Negative:
LIPSTER, S.: The NFPA 99 Electrical Systems Technical Committee did not follow the requirement of providing the exact extracted material from 2012 NFPA 99 6.4.2.2.6.4. As per the Standards Council decision, the coordination of the electrical requirements, material such as this are to be direct extractions from NFPA's health care documents. The 2012 NFPA 99 Health Care Standard 6.4.2.2.6.4. “Mechanical Protection of the Life Safety and Critical Branches. The wiring of the life safety and critical branches shall be mechanically protected by raceways.” The language of the proposal should clearly coordinate with NFPA 99.
NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer "room" and other NFPA 99 nomenclature as requested by the proposer.

Ballot Results: Affirmative: 13

Related Proposals 15-19 and 15-20

15-19 Log #3879 NEC-P15 (517.2, Patient Care Area) Final Action: Accept in Principle

TCC Action: The Correlating Committee directs the panel to reconsider this proposal with respect to the accuracy of the extracted material and the use of permissive language in the Informational Notes. Defined terms in this proposal shall be extracted from NFPA 99.

The Correlating Committee further directs that the panel ensure that where text is extracted from NFPA 99 it meets the requirements of 4.3.2.2 of the NEC Style Manual.

In addition, it was the action of the Correlating Committee that further consideration be given to the comments expressed in the voting. This action will be considered as a public comment.
Space Room in which failure of equipment or a system is likely to cause
major/minor injury or death to patients or caregivers.

Support Space Room in which failure of equipment or a system is not
likely to have a physical impact on patients or caregivers.

**Critical Care Areas**

These spaces within patient care areas where a procedure is performed with that are normally subject to wet conditions while
patients are present. These include standing fluids on the floor or drenching of the work area, either of which condition is intimate to the patient or staff.

Informational Note 1: The governing body of the facility designates patient
care spaces in accordance with the type of patient care anticipated and
with the definitions of the area classification. Business offices, corridors,
lounges, day rooms, dining rooms, or similar areas typically are not classified
as patient care rooms. [99:1.3.4.1]

Informational Note 2: General care spaces may include areas such as
patient bedrooms, treatment rooms, clinics, and similar areas in which the
patient may come in contact with electromagnetic devices or ordinary appliances such as a nurse call system, electric beds, examining lamps, telephones, and entertainment devices.

Informational Note 3: Critical care spaces may include special care units,
intensive care units, coronary care units, angiography laboratories, cardiac
catheterization laboratories, delivery rooms, operating rooms, and similar areas in which patients are intended to be subjected to invasive procedures and
connected to line-operated, electromedical devices.

Informational Note 4: Spaces within a patient care room where a procedure is performed that subjects patients or staff to wet conditions may be considered as wet procedure areas. These include standing fluids on the floor or drenching of the work area, either of which condition is intimate to the patient or staff.

Informational Note No. 1: The governing body of the facility designates patient care spaces in accordance with the type of patient care anticipated and with the definitions of the area classification. Business offices, corridors, lounges, day rooms, dining rooms, or similar areas typically are not classified as patient care rooms.

[99:1.3.4.1]

**Panel Statement:** The Panel has determined that the term “room” has normally been defined as four walls and a door and is too restrictive for designers and will cause Code users confusion. The definition of critical care space has been corrected to be consistent with NFPA 99, Health Care Facilities Code.

The submitter of the proposal has failed to provide any rationale for the change of the term “area” to “room.”

**Number Eligible to Vote:** 14

**Ballot Results:** Affirmative: 11 Negative: 2

<table>
<thead>
<tr>
<th>Member</th>
<th>Vote</th>
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<tbody>
<tr>
<td>Wolff</td>
<td>Affirmative</td>
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<tr>
<td>Krupa</td>
<td>Negative</td>
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**Explanation of Negative:**

BEBE, C.: The American Society for Healthcare Engineering (ASH) of the American Hospital Association does not support the proposed changes by Panel 15 because it will create conflicts between documents. This proposal was submitted by the Technical Committee on Electrical Systems, a committee of NFPA 99. As such, the proposal was submitted to be extracted text from NFPA 99 and defining the terms “rooms” to “areas” disrupts the continuity and will create conflict between the two documents. To avoid this potential conflict, the NFPA Standards Council defined a clear division of responsibilities between Panel 15 and the NFPA 99 technical committee in their decision [907-6 issued April 23, 2007] and reaffirmed it in final decision D#11-7 dated August 10, 2011. The NFPA 70 Panel 15 committee is responsible for electrical installation requirements, whereas the committee on NFPA 99 Chapter 6, Electrical Systems is responsible for the performance, maintenance, and testing of electrical systems. The assignment of jurisdictional scopes is the direct responsibility of the Standards Council, but the Panel 15 committee failed to recognize this as evidenced by discussions and the decision to disregard the Council’s decision. Section 3.1.1 of the Regulations Governing Committee Projects requires that the work of the Technical Committees and Technical Correlating Committees shall be in accordance with any instructions subsequently issued by the Standards Council.

The Panel 15 statement states: “The Panel has determined that the term “room” …is too restrictive.” However, the determination of “room” definition or location should not be decided by Panel 15. The authority to determine where the requirements apply belongs to NFPA 99, the performance standard for healthcare facilities. The justification in the Panel Statement is performance based and therefore the decision should fall under the authority of NFPA 99. It would be inappropriate to vote affirmative with the committee action on this proposal. This proposal should have been accepted and not accepted in principle.

It should also be noted that within NFPA 99, the Technical Committee on Electrical Systems doesn’t have authority over these terms as they are broadly applied to the entire NFPA 99 document. The proposed text was extracted from 3.1.138.

NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nomenclature as requested by the proposer.

**Referenced Proposal 15-38**

**TCC Action:** The Correlating Committee directs the panel to reconsider this proposal with respect to the accuracy of the extracted material.

**Defining terms in this proposal shall be extracted from NFPA 99.**

The Correlating Committee further directs that the panel ensure that where text is extracted from NFPA 99 it meets the requirements of 4.3.2.2 of the NEC Style Manual.

In addition, the panel is directed by the Correlating Committee to consider the definition of Critical Care Areas in accordance with the type of patient care anticipated and with the following definitions of the area classification.

**Basic Care Room:** Room in which failure of equipment or a system is not likely to cause injury to the patients or caregivers but may cause patient discomfort.

**General Care Areas Room:** Patient bedrooms, examining rooms, treatment rooms, clinics, and similar areas in which it is intended that the patient will come in contact with electromagnetic devices such as a nurse call system, electric beds, examining lamps, telephones, and entertainment devices.

**Critical Care Areas Room:** Those special care units, intensive care units, coronary care units, angiography laboratories, cardiac catheterization laboratories, delivery rooms, operating rooms, and similar areas in which patients are intended to be subjected to invasive procedures and connected to line-operated, electromedical devices. The assignment of jurisdictional scopes is the direct responsibility of the Standards Council, but the Panel 15 committee failed to recognize this as evidenced by discussions and the decision to disregard the Council’s decision. Section 3.1.1 of the Regulations Governing Committee Projects requires that the work of the Technical Committees and Technical Correlating Committees shall be in accordance with any instructions subsequently issued by the Standards Council.

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It should also be noted that within NFPA 99, the Technical Committee on Electrical Systems doesn’t have authority over these terms as they are broadly applied to the entire NFPA 99 document. The proposed text was extracted from 3.1.138.

NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nomenclature as requested by the proposer.
Critical branch receptacles shall be identified and shall also indicate the panelboard and circuit number supplying them. The branch circuit serving patient bed locations shall not be part of a multi-wire branch circuit. Exception No. 1: Branch circuits serving only special-purpose receptacles or critical care areas shall be permitted to be served by other panelboards or circuits.

**Substantiation:** To Coordinate with NFPA 99. As a result of the August 10, 2011 Standards Council Decision (Final), D11-7, regarding the wording of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA 99.

An excerpt from D11-7 states: “The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that "without deciding in advance what the Council would do regarding specific jurisdictional issues related to this topic, the Council considers the guidance [from the previous task group] to be Useful." (See Standards Council Minute Item 10-3-21, March 2010).

In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.

This proposal was balloted through the Technical Committee on Electrical Systems with the following results:
- 24 Members Eligible to Vote
- 7 Not Returned (Dagenais, Krupa, Lipster, Meadon, Peterson, Smidt, and Wolff)
- 16 Affirmative on All
- 0 Negatives
- 0 Abstentions

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

**Panel Meeting Action:** Accept in Principle in Part

Revise text to read as follows:

(A) **Patient Bed Location Branch Circuits.** Each patient bed location shall be supplied by at least two branch circuits, one or more from the emergency system, and one or more circuits from the normal system. At least one branch circuit from the emergency system critical branch shall supply an outlet(s) only that at bed location. All branch circuits from the normal system shall be from a single panelboard. **Emergency system Critical branch receptacles shall be identified and shall also indicate the panelboard and circuit number supplying them. The branch circuit serving patient bed locations shall not be part of a multi-wire branch circuit.**

Exception No. 1: Branch circuits serving only special-purpose receptacles or equipment in critical care areas shall be permitted to be served by other panelboards or circuits.

**Panel Statement:** The Panel rejects changing the word “location” in the first sentence. CMP 15 rejects the replacement of the term “location” with “room” as the term “patient bed location” exists in NFPA 99 Health Care Facilities Code. The Panel changes the word “rooms” to “spaces” in Exception No. 1 and changes the word “locations” to “spaces” in Exception No. 2. The Panel accepts the other revisions. This action aligns with the Panel action on Proposal 15-19.

**Number Eligible to Vote:** 14

**Ballot Results:**
- **Affirmative:** 11
- **Negative:** 2
- **Ballot Not Returned:** 1 Krupa, G.

**Explanation of Negative:**

**BEEBE, C.:** The American Society for Healthcare Engineering (ASH) of the American Hospital Association does not support the proposed changes by Panel 15 because it would create conflicts between documents. This proposal was submitted by the Technical Committee on Electrical Systems, a committee of NFPA 101. The proposed wording is not consistent with the current standard, which does not specify the term “locations” to “areas” or “spaces.” It disrupts the continuity and will create confusion between the two documents. To avoid this potential conflict, the NFPA Standards Council defined a clear division of responsibilities between Panel 15 and the NFPA 99 technical committee in their decision D11-7 dated August 10, 2011. The NFPA 70 Panel 15 committee is responsible for electrical installation requirements, whereas the committee on NFPA 99 Chapter 6, Electrical Systems, is responsible for the performance, maintenance, and testing of electrical systems. The assignment of jurisdictional responsibilities is the direct responsibility of the Standards Council, but the Panel 15 committee failed to recognize this as evidenced by discussions and the decision to disregard the Council’s decision. Section 3.3.1.1 of the Regulations Governing Committee Projects requires that the work of the Technical Committees and Technical Correlating Committees shall be in accordance with any instructions subsequently issued by the Standards Council.

The authority to determine where the requirements apply belongs to NFPA 99. It would be inappropriate to vote affirmatively with the committee action on this proposal. This proposal should have been accepted or rejected in principle.

**NASH, JR., H.:** Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nonenclosure as requested by the proposer.

**Related Comment 15-48**

**15-48 Log #951 NEC-P15** Final Action: Hold (517.30(C))


The Correlating Committee will appoint a task group as requested by Panel 15.

**Submitter:** Richard E. Loyd, Sun Lakes, AZ

**Explanation of Negative:**

**Review Committee:** Panel 15-61

**Proposal 15-61**

**Ballot Results:**
- **Affirmative:** 12
- **Negative:** 1
- **Number Eligible to Vote:** 14

**Explanation of Negative:**

**TALKA, D.:** This comment should have been acted on. The proposed wiring method has been under consideration for over 10 years. The comment adds no new information that wasn’t considered in the past. Either the panel must either accept or reject the wiring method.

**Backup Proposal 15-61**

**15-61 Log #2941 NEC-P15** Final Action: Accept (517.30(C)(3)(3))

**Submitter:** Dave Mercier, Southwire Company

**Recommendation:** Add a new 517.30(C)(3)(3) as follows after item (2) and rererefer the balance of section 517.30(C)(3).

(3) Listed MC cable identified as providing crush, impact and penetration protection performance comparable to electrical metallic tubing.

**Substantiation:** Type MC cable can be constructed to provide enhanced mechanical protection comparable to EMT while maintaining ground path integrity before, during and after installation. A follow-up Fact-Finding Report addresses the concerns about the types of conductors used in the original study.

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

**Panel Meeting Action:** Accept

**Number Eligible to Vote:** 14

**Ballot Results:**
- **Affirmative:** 12
- **Negative:** 1
- **Ballot Not Returned:** 1 Krupa, G.
Recommendation:

(3) Mechanical protection of the Emergency

Submitter:


TCC Action: The Correlating Committee directs that the panel reconsider this proposal with respect to the Correlating Committee Action on Proposals 15-19 and 15-20.

Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3.4.2 and 3.4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept

Revise text to read as follows:

(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care rooms areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:

Panel Statement: The panel reconsiders its action and agrees with action taken on Proposal 15-19 and Proposal 15-20 to change to the word “space” instead of “room” or “area”. An editorial change was made to correct the word “spaces” to “space”.

Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

Backup Proposal 15-62

15-62 Log #3468 NEC-P15 (517.30(C)(3))

TCC Action: The Correlating Committee directs that the panel reconsider this proposal with respect to the Correlating Committee Action on Proposals 15-19 and 15-20.

This action will be considered as a public comment.

Submitter: Technical Committee on Electrical Systems

Recommendation: Revise text to read as follows:

(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care rooms areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:

Substantiation: To Coordinate with NFPA 99. As a result of the August 10, 2011 Standards Council Decision (Final), D#11-7, regarding the scoping issues of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA 99.

An excerpt from D#11-7 states: “The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that “without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be Useful”. (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.”

This proposal was balloted through the Technical Committee on Electrical Systems with the following results:

- 24 Members Eligible to Vote
- 7 Not Returned (Dagenais, Krupa, Lipster, Meade, Peterson, Smidt, and Wolff)
- 16 Affirmative on All
- 0 Negatives
- 0 Abstentions

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

Panel Meeting Action: Accept in Principle

Revise text to read as follows:

(3) Mechanical protection of the Emergency Essential Electrical System. The wiring of the emergency life safety and critical branches shall be mechanically protected. Where installed as branch circuits in patient care rooms areas, the installation shall comply with the requirements of 517.13(A) and (B). The following wiring methods shall be permitted:

Panel Statement: The panel changed the word “rooms” to “spaces” to remain consistent with the panel action and statement on Proposal 15-19.

Number Eligible to Vote: 14
Ballot Results: Affirmative: 10 Negative: 3
Ballot Not Returned: 1 Krupa, G.

Explanation of Negative:


LIPSTER, S.: The NFPA 99 Electrical Systems Technical Committee did not follow the requirement of providing the exact extracted material from 2012 NFPA 99 6.4.2.2.6.4. As per the Standards Council decision, the coordination of the electrical requirements, material such as this are to be direct extractions from NFPA’s health care documents. The 2012 NFPA 99 Health Care Standard 6.4.2.2.6.4. “Mechanical Protection of the Life Safety and Critical Branches. The wiring of the life safety and critical branches shall be mechanically protected by raceways...” The language of the proposal should clearly coordinate with NFPA 99.

NASH, JR., H.: Panel 15 is compelled to accept the NFPA 99 wording. I prefer “room” and other NFPA 99 nonenclature as requested by the proposer.
argument and urge the group here to vote in his favor.

MR. BELL: Thank you. Any further discussion on the floor? Seeing no one at the mics, Mr. Johnston?

MR. JOHNSTON: I have no additional information.

MR. BELL: With that, we'll move to the motion on the floor which is to accept an identifiable part of Comment 14-56 as noted in the Motions Committee report. Press 1 if you're in favor of the motion and press 2 if you oppose the motion. Vote now. 5 seconds.

Voting is closed. Motion fails.

Move to the next sequence which is 70-37.

Microphone 6.


MR. BELL: So the motion on the floor is to accept Proposal 15-62 as modified by the Technical Committee. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MR. BEEBE: This is a fairly simple one
actually. 517.30(C) was modified during the ROP through 15-62 and the ROC 15-49. A nonrelated change to this section was put on hold during the ROC stage. That was 15-48. Because of that hold, this text would actually revert back to the original text from 2011. This inadvertently loses the changes that were made in this proposal and were created by a task group that consisted of several members of Panel 15 as well as the NFPA 99 ELS Committee. These changes coordinate with terminology throughout Article 517. So without support of this, it would make quite a bit of confusion throughout the section.

MR. BELL: Thank you. Mr. Johnston.

MR. JOHNSTON: Thank you, Mr. Chair. This is a correlation issue. Comment 15-48 was held by CMP 15, and the hold included Proposal 15-62. Correlations recommended that Certified Amending Motion 37 be accepted so it supports consistent use of the term "essential electrical system".

I would also like to defer to the Chair of Code-Making Panel 15 Mr. Larry Todd, please.

MR. TODD: Thank you. My name is Larry Todd.
I work for Intertek and I'm Chair of Code-Making Panel 15, and I am speaking for this motion.
Without this motion, the work that Panel 15 had done to accept and make changes to coordinate within NFPA 99 and Proposal 15-62 and
Comment 15-49 would be lost; and, as stated in the Certified Amending Motion, we need to put those back in to be consistent throughout the sections covered by the Code-Making Panel. Thank you.

MR. BELL: Thank you. Any further discussion?

Seeing no one at the microphone, we'll move to vote on the motion on the floor which is to accept Proposal 15-62 as modified by the Technical Committee. Press 1 if you're in favor of the motion and press 2 if you're opposed to the motion. Vote now. 5 seconds.

Balloting closed. Motion passes.

We'll now move on to 70-38. Motion on the floor.

MR. HIRSCHLER: Marcelo Hirschler, GBH International. I move to accept Comment 18-3.

MR. BELL: The motion is to accept Comment 18-3. Is there a second?

A VOICE: Second.

MR. BELL: I hear a second. Please proceed.

MR. HIRSCHLER: This is similar to previous motions. I don't want to waste a lot of time. The second sentence and third sentence of this has nothing to do with the definition and needs to be put into a separate section of the Code.

MR. BELL: Thank you. Mr. Johnston?

MR. JOHNSTON: Thank you, Mr. Chair. I would like to defer to the Chair of Code Making Panel 18, Mr. Bobby Gray. I'm sorry, Bobby.
ASSOCIATION AMENDMENT BALLOT RESULTS

DATE: July 22, 2013

AMENDMENT (70-37)

Document: NFPA 70, National Electrical Code

Motion: To Accept Proposal 15-62 as Modified by the Technical Committee

CC FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS** achieved the necessary $\frac{3}{4}$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 9 [12 (eligible to vote) – 0 (ballots not returned) – 0 (abstentions) = $12 \times 0.75 = 9$]

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<thead>
<tr>
<th>Eligible to Vote</th>
<th>Not Returned</th>
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- 1 Yes correlation issues (Owen)
- 11 No correlation issues (LaBrake w/comment)
- 0 Abstain

**CC Action: PASS**

CMP 15 FINAL Ballot Results

According to 4.7.1 in the NFPA (RGCP), the final results show this Amendment **HAS** achieved the necessary $\frac{2}{3}$ majority vote. The number of affirmative votes needed to obtain a recommendation to issue the Amendment is 7 [14 (eligible to vote) – 4 (ballots not returned) – 0 (abstentions) = $10 \times 0.66 = 6.6$]

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- 10 Agree
- 0 Do Not Agree
- 0 Abstain

**CMP Action: PASS**

Amendment: Accept Proposal 15-62 as Modified by the Technical Committee

With respect to this amendment to Accept Proposal 15-62 as Modified by the Technical Committee, do you see any CORRELATION issues that will be caused as a result of this amendment being implemented into the document:

☐ Yes* ☐ No ☐ Abstain*

*Please give reasons for voting “Yes” or “Abstain”:

There are two potential correlation issues with this amendment. First, I am unable to ascertain in the time available whether all references to “Patient Care Space” were changed in Art. 517 to correlate, and also this is not a verbatim extract from NFPA 99 which uses the term “Patient Care Rooms”, not “Spaces”.

__________________________
Richard P. Owen

Signature: ______________________________

Name - Please Print: Richard P. Owen

Date: July 11, 2013

Please return as soon as possible, but no later than July 15, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
617-984-7953 phone
617-984-7070 fax
Email: Kshea@nfpa.org
Amendment: Accept Proposal 15-62 as Modified by the Technical Committee

With respect to this amendment to Accept Proposal 15-62 as Modified by the Technical Committee, do you see any CORRELATION issues that will be caused as a result of this amendment being implemented into the document:

- [ ] Yes*
- [ ] No
- [ ] Abstain*

See comment below.

*Please give reasons for voting “Yes” or “Abstain”:

Comment on “No” ballot: The results of the Correlating Committee Task Group to correlate A2013 NEC ROP CMP-15 proposals and 2012 NFPA 99 reported this statement as it reflects the issue on P15-62 and should resolve the correlation issue in the ballots from Messrs. Brunsen and Owen.

“The TG recognizes in Proposals 15-20, 15-26, 15-33, 15-42, and 15-62 that these definitions as revised with the term change from “areas” to “spaces” do not correlate with NFPA 99-2012. However, NFPA 99 members of this Task Group are submitting a TIA to NFPA 99-2012 to have correlation when the 2014 NEC is issued based on the A2014NFPA99 ROP meeting. The 2015 revision of NFPA 99 can then process the change during its comment stage to ensure its correlation with the 2014 NEC.”

Signature: ________________________________

Name - Please Print: Neil F. LaBrake, Jr. – CC Principal, EEI rep.

Date: 18 July 2013

Please return as soon as possible, but no later than July 15, 2013 to:

Kim Shea, Administrator, Technical Projects
National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169
617-984-7953 phone
617-984-7070 fax
Email: Kshea@nfpa.org

Note: Please remember that the return of ballots and attendance at Committee Meetings is required in accordance with Section 3.1.3.1 of the Regulations Governing Committee Projects.
To: NFPA Standards Council  
From: Walt Vernon, Mazzetti Engineers, Chair NFPA 99 ELS Technical Committee  
Date: June 19 2013  
Re: Appeal of NFPA 70 Panel 15 action 15-64, Log #3270

(1) Name, affiliation, and address of the appellant:

Walt Vernon, Chair NFPA 99 ELS  
CEO, Mazzetti  
220 Bush Street, Suite 630  
San Francisco, California 94104

(2) Statement identifying the particular action to which the appeal relates:

I appeal the action of NFPA 70 Panel 15 action 15-64, Log #3270.

This action by Panel 15 accepted a proposal to require electrical receptacles that are supplied from the emergency system to “have an illuminated face or an indicator light to indicate that there is power to the receptacle.”

(3) Argument setting forth the grounds for the appeal:

(a) Jurisdiction over the question:

In 2008, the NFPA developed a policy to help guide the committees responsible for NFPA 70 and NFPA 99 as it relates to healthcare electrical systems. In essence, the NFPA determined that NFPA 99 was responsible for performance of healthcare electrical system and that NFPA 70 must defer to NFPA 99 on these issues. Similarly, NFPA is responsible for determining installation standards for those systems, and that NFPA 99 must defer to NFPA 70 on those issues.

In particular, performance was defined as “the manner in which equipment or a system is intended to function or operate.” And, installation was defined as “the material and process associated with putting equipment in place and making it ready for use in accordance with performance requirements.” These definitions still leave some room for debate on some issues, but fairly clearly lay out the respective duties.

The issue considered in this item, whether or not an outlet on emergency power should be lit, is clearly indicating the “manner in which equipment is intended to function or operate.” Therefore, this is a requirement that should be addressed by NFPA 99, NOT NFPA 70. In fact, this same proposal came to NFPA 99, and was rejected by our committee for reasons similar to those discussed below.
(b) Technical Considerations

Various members of the NFPA 70 committee expressed the reasons that the requirement is an overreach:

i. With the reliability, frequent testing required by 99, and regulatory oversight of emergency systems in healthcare facilities, there is no need or additional benefit to requiring an indicator light on every receptacle.

ii. Vital medical equipment is required to be provided with battery backup and alarms. The supporters of the new requirement claim that, in an emergency, it is not clear which outlets have power and which do not. So, if a particular outlet has no power, the equipment will indicate it, once plugged in, and will not fail in any event, as the user finds another to plug into.

iii. There is no evidence whatsoever that there is a problem. There is not one reported case of a power outage in which somebody plugged something into an emergency outlet and failed to receive power. The proposal accepted by Panel 15 is not a solution to a problem, it is the invention of a rationale to sell a product.

iv. Because there is no problem to be solved, nor benefit to be conferred, the additional cost required (not to mention energy consumption – all the outlets all over the country) is unreasonable to require, and foolish to require.

(c) Committee balance

It is true that Panel 15 is balanced on the basis of the NFPA member categories. However, the number of committee members that stand to profit from this and similar changes outnumber the committee members who understand the true costs and benefits from such a requirement. I see this all the time on my own committee. I think the NFPA needs to find ways to better balance these viewpoints. I think the NFPA has a fundamental responsibility to promulgate regulations that provide the appropriate level of safety, and NOT regulations that provide for the pocketbooks of the interests represented by the committee members.

(4) Statement of the precise relief requested:
Overrule NFPA 70, Panel 15. Reject the proposal and return to the original language.

(5) Whether a hearing on the appeal is being requested:

Yes, if needed.
Report on Proposals A2013 — Copyright, NFPA

produced by the connected load of the essential electrical system demand for the operation of all functions and equipment to be served by each system and branch.

Feeders shall be sized in accordance with Articles 215, 2 and Part III of Article 230. The generator set(s) shall have the minimum capacity and power rating to meet the demand produced by the load of the essential electrical system(s) at any given time.

Demand calculations for sizing of the generator set(s) shall be based on any of the following:

1. Prudent demand factors and historical data
2. Connected load
3. Feeder calculation procedures described in Article 220
4. Any combination of the above

The sizing requirements in 700.4 and 701.4 shall not apply to hospital generator set(s).

Panel Statement: The panel agrees with the submitter’s intent and revised 517.30(D) editorially to comply with the NEC Style Manual.

Number Eligible to Vote: 14
Balket Results: Affirmative: 13
Ballot Not Returned: 1 Krupa, G.

July 22, 2013
Supplemental Agenda July 29-August 1, 2013
Page 923 of 1861

15-64 Log #3270 NEC-P15 Final Action: Accept
(517.30(E))

Submitter: Brian E. Rock, Hubbell Incorporated
Recommendation: Add new text and update the NFPA 99 reference to read as follows:

517.30 Essential Electrical Systems for Hospitals.
(517.30(E) through 517.30(D) are unchanged by this Proposal)
(E) Receptacle Identification. The cover plates for electrical receptacles or the electrical receptacles themselves supplied from the emergency essential electrical system shall have a distinctive color or marking so as to be readily identifiable.

99a.4.2.1.4.7: 6- and 12-volt, 15- and 20-ampere receptacles shall have an illuminated face or an indicator light to indicate that there is power to the receptacle.

Substantiation: Receptacles that are supplied from the emergency system must be clearly identified to insure that vital equipment and instrumentation connected function in the event of power interruption. However, there is no method of indicating that the receptacles on these circuits are, in fact, supplying power to the equipment. While the distinctive color or marking identifies that the receptacle is connected to the emergency system, an illuminated receptacle will insure that there is clear indication that the receptacle is providing power. The increased visibility of an illuminated receptacle will insure that a receptacle that is providing power can be quickly accessed in an emergency situation, especially when power failures result in diminished illumination by that portion of the room lighting not connected to the emergency system. Furthermore, reliance solely on some distinctive color in an emergency situation may be ineffective for personnel who are color blind.

Such an illuminated indication of the powered state of receptacles on Type 1 Essential Electrical Systems (Type 1 EES) is fully consistent with the requirement for pilot light indicators of switch position in 2012 NFPA 99, clauses 6.4.2.1.5.12 and 6.4.2.1.5.15(b).

The panel confusion in forums outside Code-Making Panel 15 that proposals similar to this one had been rejected by the CMPs responsible for Article 517 in the past. Research of prior Code cycles reveals that there had been no Proposals or Comments whatsoever in this regard. This 517.30(E) section resulted from a Proposal P17-29a in the Code cycle leading to the 2002 NEC®. During that Code cycle, there were Proposals (P17-40 through P17-44) that the “distinctive color” be prescriptively assigned to a specific color (typically red), correctly rejected by the Panel, that may be the source of this “urban legend” confusion. There were however no Proposals or Comments regarding powered-status indication for receptacles in that 2002 Code cycle or any Code cycle thereafter.

The revision of the existing NFPA 99 clause reference is to reflect the numbering that occurred with the 2012 edition of NFPA 99.

Panel Meeting Action: Accept
Number Eligible to Vote: 14
Balket Results: Affirmative: 9 Negative: 4
Ballot Not Returned: 1 Krupa, G.

Explanation of Negative: BEEBE, C.: With the reliability, frequent testing, and regulatory oversight of emergency systems in healthcare facilities there is no need to require an indicator light on every receptacle. Alarms or battery backup or both are provided to indicate/accommodate a loss of power on vital life support equipment. There was no technical data provided to indicate that there is a widespread problem with poor patient outcomes that could have been averted with the provision of an indicator light. This change would not improve current conditions. If anything, this change could add additional risk to the patient. If the indicator light is faulty, staff may unnecessarily disconnect vital equipment from the emergency system and connect it to non-emergency system receptacles at their discretion.

DUNCAN, J.: The panel should have rejected this proposal and referred the submitter to NFPA 99 as this is a performance issue.

NASH, JR., H.: Pilot lights are unnecessary and do little to improve the quality of patient care. The cost is prohibitive.

TALKA, D.: While an illuminated face or pilot light is an attractive option, the submitters failed to provide any reference to a problem he has identified and is attempting to correct. Section 517.30(E) is extracted material from NFPA 99 meaning it is performance/design related. If material dealing with identification of receptacles on the essential system is under NFPA 99’s purview, it stands to reason that the need for illumination of these same receptacles should also be under NFPA 99’s purview.

Comment on Affirmative: FRIEDMANN, S.: NEMA urges Members of CMP15 to vote Affirmative with the Panel Action to Accept Proposal 15-64. The Panel Actions for Proposals 15-15-36, 15-39 and 15-41 increase the minimum number of receptacle outlets required. Rapid visual confirmation of which receptacle outlets are still energized when normal electrical service is interrupted may be essential to avoid incorrect connection into unpowered receptacle outlets of portable cord-and-plug-connected medical equipment and instrumentation during emergency conditions.

15-65 Log #3465 NEC-P15 Final Action: Accept
(517.30(E))

Submitter: Technical Committee on Electrical Systems
Recommendation: Revise text to read as follows:

(E) Receptacle Identification. The cover plates for electrical receptacles or the electrical receptacles themselves supplied from the emergency essential electrical system shall have a distinctive color or marking so as to be readily identifiable.

Substantiation: To Coordinate with NFPA 99. As a result of the August 10, 2011 Standards Council Decision (Final), D11-7, regarding the scopeing issues of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA 99.

An excerpt from D11-7 states: “The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that “without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be Useful”. (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (casading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.”

This proposal was balloted through the Technical Committee on Electrical Systems with the following results:
24 Members Eligible to Vote
7 Not Returned (Dagenais, Krupa, Lipster, Meade, Peterson, Smidt, and Wolff)
16 Affirmative on All
0 Negatives
0 Abstentions
Note: Supporting material is available for review at NFPA Headquarters. Panel Meeting Action: Accept
The panel understands that the changes made by the action taken on this proposal is in addition to the changes that were accepted by the action taken on Proposal 15-64.
Number Eligible to Vote: 14
Balket Results: Affirmative: 13
Ballot Not Returned: 1 Krupa, G.

15-66 Log #3470 NEC-P15 Final Action: Reject
(517.30(F) (New))

TCC Action: It was the action of the Correlating Committee that this proposal be reported as “Reject” because less than two-thirds of the members eligible to vote have voted in the affirmative.

Submitter: Technical Committee on Electrical Systems
Recommendation: Add new text to read as follows:

(F) Selective Coordination. Overcurrent protective devices serving the essential electrical system shall be selectively coordinated for the period of time that a fault’s duration extends beyond 0.1 second.

Exception No. 1: Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary.

Exception No. 2: Isolated power systems inherently comply with this selective coordination requirement.

Exception No. 3: Between overcurrent protective devices of the same size (ampere rating) in series.

Substantiation: To Coordinate with NFPA 99, 6.4.2.1.2. As a result of the August 10, 2011 Standards Council Decision (Final), D11-7, regarding the scopeing issues of electrical requirements in NFPA 99, Health Care Facilities Code, coordination of the electrical requirements is needed between the NEC and NFPA 99.
Minute Item 10-3-21

The Task Group on Inter-Committee Coordination on Emergency Electrical Systems provided its Report to the Council in August, 2009. Without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance in the report to be useful. The Task Group has provided some guidance to the Technical Committees in the form of two definitions as follows:

Performance Requirement. A specification of the manner in which equipment or a system is intended to function or operate.

Installation Requirement. A specification of the material and process associated with putting equipment in place and making it ready for use in accordance with performance requirements.

The NEC Staff took the recommendations from the report and created guidance for their Panels using the definitions from the Task Group and provided examples to illustrate the points as they relate to their respective documents. The Council requested that NFPA Staff, for the other relevant documents, create similar guidance for their respective Technical Committees. It should be clarified to the Technical Committees that if their document’s scope addresses performance, then the Technical Committee can only write performance requirements; and if their document’s scope addresses installation, then the Technical Committee can only write installation requirements. The Council directs NFPA Staff to report back to the Council in October 2010 with a report that shows the materials provided to the relevant Technical Committees.

The Task Group on Inter Committee Coordination on Emergency Electrical Systems was discharged by the Council with thanks.
Task Group on Inter-Committee Coordination on Emergency Electrical Systems  
James Carpenter

A meeting of the Task Group on Inter-Committee Coordination on Emergency Electrical Systems was held July 17, 2008 at NFPA Headquarters, Quincy, MA. The following Task Group members were present:

James Carpenter, Chair  
(Standards Council and NFPA 70)
Andrew Berezowski (NFPA 72)
Hugh Castles (NFPA 20)
Michael Crowley (NFPA 99)
Doug Erickson (NFPA 99)
David Stymiest (NFPA 110)
Donald Talka NFPA 70 – CMP-15)

Peter Larrimer was invited but did not attend (NFPA 72 & 101)

And NFPA staff:
MiIosh Puchovsky
Mark Earley
Jean O’Connor

The Task Group was charged to address whether certain requirements in the NEC are based on installations requirements or based on performance requirements. Other NFPA documents (NFPA 20, 72, 99, 101, 110) were also addressed on the criteria of installation versus performance requirements. A discussion was held relating to installation versus performance requirements. It was agreed that the terms that may be interpreted differently by various committees. It was suggested that reliability concerns may necessitate installation requirements in performance documents in some cases. The Task group developed the following definitions:

**Performance Requirement.** A specification of the manner in which equipment or a system is intended to function or operate.

**Installation Requirement.** A specification of the material and process associated with putting equipment in place and making it ready for use in accordance with performance requirements.

Two Sub-Task Groups were formed to coordinate issues related to performance versus installations requirements and to insure consistent terminology in the affected documents.

**Sub-Task Group 1:**
The Chairs of NEC CMP 13 (Article 700, 701, and 702) and CMP-15 (Article 517) and the Chair of Health Care Facilities Electrical Systems Technical Committee (NFPA 99) were to appoint members for Sub-Task Group 1. Doug Erickson was appointed Chair of the Sub-Task Group with David Stymiest serving as a representative from the main Task Group.

**Sub-Task Group 2:**
The Chairs of NEC CMP-13 and NFPA 20 were to appoint members of Sub-Task Group 2. Michael Crowley was appointed Chair of the Sub-Task Group.

The Sub-Task Groups were to develop proposals that met the definition of Installation Requirement and Performance Requirements for affected NFPA document currently in cycle.

Because of the deadline for submitting proposals to the NEC and the other affected documents the Sub-Task Groups did not have sufficient time to prepare proposals and have them submitted through the main Task Group. However, some proposals were submitted to the NEC process by individuals involved in the Sub-Task Group work.

**Sub-Task Group 1:** It was reported that a member of Sub-Task Group 1, also a member of NFPA 99, submitted at least twenty (20) proposals to CMP-15 in three (3) or four (4) key areas. Don Talka, Chair of CMP-15 reported that even though some of the proposals were accepted, there was reluctance to accept proposals based on NFPA 99 when NFPA 99 had not been accepted at that
time. Don also reported that, as Chair, he had briefed the panel on the Task Groups charge from the Standards Council concerning Installation versus Performance requirements. NFPA 99 was returned to committee by floor action at the NFPA 2009 Technical Session. This will have an impact on the proposals during the ROC process.

**Sub-Task Group 2:** Due to missing the closing date for proposals to the NEC, neither Sub-Task Group 2 nor any of its members submitted proposals for the 2011 NEC. Some committee members were going to submit proposals for fire pumps. It is not known if this was done.

**Meeting Notice Information**

NFPA staff informed the members of the code making panels of the activities of the task group through the NEC Meeting Notice. The meeting notice, printed in newsletter format, contained an article that featured a brief explanation of how proposals should be addressed (performance vs. installation) and it included a chart that had been developed by the main task group.

**Status:**

The NEC Technical Correlating Committee instructed CMP-15 to reconsider it action on several proposals that incorporated language from the proposed revision NFPA 99, however due to the return of NFPA 99 those proposals will probably be rejected for the 2011 edition of the NEC. The Task Group should now have time to more fully develop language for the affected documents based on the proposed definition of Performance Requirements and Installation Requirements.

**Recommendation:**

The Standards Council should base any appeals or actions concerning Performance versus Installation Requirements on the proposed definitions and direct the affected committees to act accordingly. If the Standards Council accepts the proposed definitions, the affected committees should be notified that all actions should meet the intent and criteria of the definitions.
At its meeting of August 9-10, 2011, the Standards Council considered two appeals from Malcolm Allison from the National Electric Fuse Association (NEFA) on the 2012 edition of NFPA 99, *Health Care Facilities Code* as follows.

The first appeal requested that NFPA 99 be issued with the acceptance of Certified Amending Motion (CAM) 99-6, which sought to Return a Portion of a Report in the form of Proposals 99-39, 99-40 and 99-108 and related Comments 99-35, 99-36, 99-37, 99-123 and 99-124. Specifically, the CAM sought to return Section 4.4.2.2 to previous edition text and also return the following definitions to previous edition text: 3.3.26 Critical Branch, 3.3.29 Critical System, 3.3.41 Emergency System, 3.3.43 Equipment System, 3.3.96 Life Safety Branch, and 3.3.153 Quiet Ground.


The second appeal requested that NFPA 99 be issued with the acceptance of CAM 99-10 (which is a Related Motion to CAMs 99-11 through 99-14) to accept Comment 99-115, which sought to reject Proposal 99-107 that would delete the three proposed new sections providing requirements for selective coordination.

As background on the second appeal, the TC and the TCC accepted Committee Proposal 99-107 that would add three proposed new sections (4.4.2.1.2, 4.5.2.1.1, 4.6.2.1.1 [renumbered as 6.4.2.1.2, 6.5.2.1.1 and 6.6.2.1.1 in the 2012 edition]) providing requirements for selective coordination. Comment 99-115 recommended rejection of Proposal 99-107 and was rejected by the TC and TCC. A CAM seeking acceptance of CAM 99-10 which sought to delete the three proposed new sections providing requirements for selective coordination was made at the 2011 Association Technical Meeting (Tech Session). The motion failed.

Both appeals request that the Council overturn the actions that were recommended by the NFPA codes and standards development process. This recommendation represents the
consensus judgment of the responsible TC and TCC, a judgment that was also supported by votes of the NFPA membership at the 2011 Tech Session. The appellant has had the opportunity to advocate his position at each stage of the process and failed at every stage to achieve acceptance of his positions. On appeal, the Council accords great respect and deference to the NFPA codes and standards development process. In conducting its review, the Council will overturn the result recommended through that process only where a clear and substantial basis for doing so is demonstrated. The Council has reviewed the entire record concerning these matters and has considered all the arguments put forth in the appeals. In the view of the Council, these appeals do not present any clear and substantial basis on which to overturn the results yielded by the NFPA codes and standards development process. Accordingly, the Council has voted to deny both appeals. The effect of these actions is that the proposed new edition of NFPA 99 is issued with the modifications approved by the TC and TCC with respect to the items in CAM 99-6, and the document is also issued with the three proposed new sections providing requirements for selective coordination with respect to the items in CAM 99-10.

Without attempting to review each argument that the Council has considered and rejected as part of this appeal, the Council wishes to make several points. First, underlying this appeal is disagreement over whether the selective coordination provisions that are the subject of the appeals are within the jurisdiction of the NFPA 99 committee project or within the jurisdiction of the National Electrical Code® (NEC®) committee project. The assignment of jurisdictional scopes among technical committee projects is the direct responsibility of the Standards Council. See, generally, NFPA Regulations Governing Committee Projects (Reqs) at Section 3.1. In assigning jurisdictional responsibilities among NFPA committees, the Council seeks to maximize coordination and avoid overlap and conflict among NFPA codes and standards. The Council has been aware of coordination issues between the NEC and other NFPA documents with respect to performance requirements for the life safety branch, critical branch and equipment system for emergency systems. In previous Council Decision No. 07-6 (SC#07-7-5-1, July 27, 2007), the Council established the Intercommittee Coordination Task Group on Emergency Electrical Systems to study these issues. The task group has provided useful guidance and recommendations to the relevant technical committees and the Council. (See Standards Council Minute Item 10-3-21, March 2010). Based on the input of the task group and on its own independent assessment, the Council has no difficulty in concluding that the prevention of cascading outages (achieving selective coordination) is a performance requirement belonging to NFPA 99, not an installation requirement within the jurisdiction of the NEC. The NFPA 99 committees, therefore, had the authority to develop the selective coordination performance requirements that have been challenged on this appeal.

Second, the appellant has requested that the Council add new sections in NFPA 99 to clarify that any part of the essential electrical system or any of its branches must comply with the relevant Articles of the NEC. The text proposed was not presented to the TC or the TCC in any form, including as a proposal or comment, therefore, the Council will not
consider the new text. The Council notes, however, the new edition of NFPA 99, Section 6.3.2.1 reads as follows:

6.3.2.1 Electrical installation. Installation shall be in accordance with NFPA 70®, National Electrical Code®.

Accordingly, the Council believes that NFPA 99 sufficiently refers to NFPA 70®, National Electrical Code®, for issues relating to installation, and that this reference is sufficiently clear. There was also a request to remove the word “installation” from the Purpose of NFPA 99 in Section 1.2. Again, this deletion was not presented to the TC or the TCC in any form, including as a proposal or comment, and the Council, therefore, will not consider the new text. The Council notes, however, that the word “installation” only appears in the chapter scope of Chapter 5, Gas and Vacuum Systems, and does not appear in the Chapter 6, Electrical Systems. It is clear that the word “installation” applies to the installation of gas and vacuum systems, and not the installation of electrical systems.

Third, the appellant, in various ways seeks to challenge NFPA’s compliance with the American National Standards Institute (ANSI) Essential Requirements (ANSI Essential Requirements.) ANSI is the oversight body for U.S. voluntary consensus standards developers such as NFPA, and the NFPA Regulations Governing Committee Projects (Reg) are approved by ANSI as meeting the ANSI Essential Requirements. It is through adherence to those Regs that NFPA ensures that the principles of openness, fairness and balance reflected in the ANSI Essential Requirements are met. It is difficult to locate in the submissions and presentations of the appellant any provision of the Regs that he contends has been violated. The Council, in any event, has reviewed the entire record before it and has found no violation of the Regs or indeed any unfairness that would implicate the ANSI Essential Requirements.

For example, the appellant spends much effort suggesting improprieties in the composition and activities of the Task Group on Inter-committee Coordination on Emergency Electrical Systems and its sub-groups. It is not clear how the activities of the task group are directly relevant to the appeal. The task group was entirely advisory, it had no decision-making authority, and it was clearly not a consensus body as defined by ANSI. Task groups often contribute input to standards development and there is no requirement that task groups meet any particular requirements such as balance requirements. Cf. Regs Section 3.1.3.4 (task groups need not be balanced by interest). In any case, the decisions with which the appellant takes issue were made, not by any task group, but by the TC and TCC and now by this Council.

Fourth, the appellant sought to have the Council accept NEFA’s newly submitted application for membership on the Technical Committee on Electrical Systems (HEA-ELS) in the NFPA 99 project. As background, another NEFA nominee’s application for this TC was considered at the October 2008 Standards Council meeting, and was rejected by the Council because the interest NEFA represents has only a limited interest in the total scope of the TC. An in-person reconsideration of this and other NEFA applications was heard by the Council in March 2009, and the respective decisions on the various TC applications for several NFPA TCs were reaffirmed. The new application from NEFA seeking membership on HEA-ELS will be reviewed and acted on in the normal course.
Finally, there has been the suggestion that the issues of intercommittee coordination merit the creation of a new task group to conduct further study. The Council does not, at this time, believe that creation of another task group is warranted. The Council believes that the distinction between performance requirements and installation requirements is reasonably clear and the Council reiterates that "without deciding in advance what the Council would do regarding specific jurisdictional issues relating to this topic, the Council considers the guidance [from the previous task group] to be useful". (See Standards Council Minute Item 10-3-21, March 2010). In this Decision, the Council has concluded that selective coordination (cascading outages) properly falls within the jurisdiction of NFPA 99. The NEC project should proceed, as part of its standards development activities, to harmonize the NEC with the relevant provisions of NFPA 99.

Standards Council Members Jim Pauley and Dick Owen recused themselves during the hearing, deliberation and vote on these issues.
At its meeting of 24-27 July 2007, the Standards Council considered an appeal from Douglas Erickson of the American Society for Healthcare Engineering requesting the acceptance of Comment 15-35. Specifically, the appeal requests that section 517.26 of NFPA 70, National Electrical Code® (NEC®) concerning the life safety branch of the emergency system, as revised by Proposal 15-43, be renumbered as section 517.3 and not be included with other requirements pertaining to essential electrical systems. Article 517 of the NEC pertains to healthcare facilities. Section 517.26 is located in section III of Article 517 which pertains to essential electrical systems while renumbered section 517.3 would be located in section I of Article 517 which addresses general requirements.

As background, Proposal 15-43 recommended revisions to section 517.26 and was accepted by the Code Making Panel 15 (CMP 15) and the Technical Correlating Committee (TCC) of the NEC. Subsequently, Comment 15-35 was submitted recommending that section 517.26 as revised by Proposal 15-43 be reconsidered and renumbered as section 517.3. At its meeting, CMP 15 accepted Comment 15-35 but during the letter ballot of CMP 15 that followed, the Comment failed to achieve the two-thirds affirmative vote necessary under NFPA rules to achieve final acceptance by CMP 15. Accordingly, the TCC directed that the action on Comment 15-35 be reported as reject. In addition, the TCC directed that the action on Proposal 15-43 also be recorded as reject since CMP 15 no longer appeared to have consensus on the issue. A certified amending motion seeking acceptance of Comment 15-35 was made at the Technical Committee Report Session of the June 2007 Association membership meeting. The motion failed to obtain the support of the general NFPA membership in attendance.

This appeal requests that the Standards Council overturn the action that was recommended by the full NFPA codes and standards development process. This recommendation represents the consensus judgment of the responsible technical committee or code making panel, a judgment that was also supported by a vote of the NFPA membership at the Technical Committee Report Session of the June 2007 Association membership meeting. The appellant has had the opportunity to advocate his position at each stage of the full codes and standards process, and failed to persuade the consensus process to adopt his position.

On an appeal, the Standards Council accords great respect and deference to the NFPA codes and standards development process. In conducting its review, the Council will overturn the result recommended through that process only where a clear and substantial basis for doing so is demonstrated. The Council has reviewed the entire record concerning this matter and has considered all of the arguments raised in this appeal. In the view of the Council, this appeal does not present any clear and substantial basis on which to overturn the results recommended by the NFPA codes and standards development process. Accordingly, the Council has voted to deny the appeal. The effect of this action is that the 2008 edition of the NEC will not include Comment 15-35 and Proposal 15-43, and the text of section 517.26 will read as it appears in the 2005 edition of the NEC.
While the Council has voted to deny this appeal, it acknowledges that inter-committee coordination issues between the NEC and other NFPA documents exist on the subject of performance requirements for the life safety systems branch, critical systems branch and equipment branch for emergency electrical systems. The Council, therefore, is directing that NEC TCC Chair, Jim Carpenter, establish and chair a task group to address and make recommendations concerning these inter-committee coordination issues, including the use of consistent terminology among the various documents. The task group should contain representation from the following NFPA Technical Committee projects:

- NEC (CMP 15)
- NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 72, National Fire Alarm Code,
- NFPA 99, Standard for Health Care Facilities
- NFPA 110, Standard for Emergency and Standby Power Systems
- NFPA 5000, Building Construction and Safety Code

Proposed changes to the text of NFPA 70 or any other affected NFPA document are to be pursued during the document’s next revision cycle or as Tentative Interim Amendments as appropriate.

Council members Carpenter and Pauley recused themselves from the deliberations and vote on this issue.