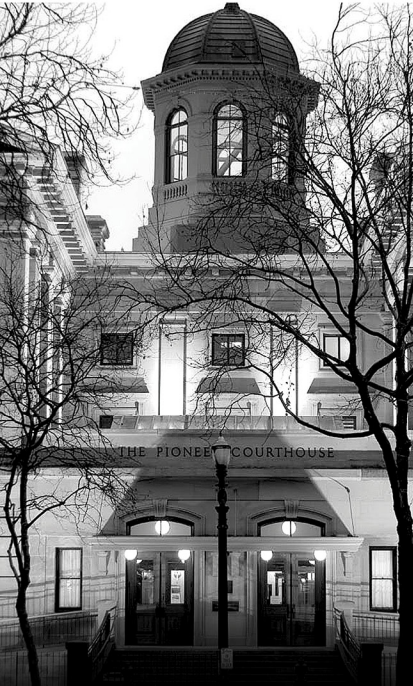




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2025 NATIONAL FIRE PROTECTION ASSOCIATION
TECHNICAL MEETING

HELD ON

THURSDAY, JUNE 19, 2025

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PARTICIPANTS

Presiding Officers: Standards Council, A2025 Motions

Committee:

James Quiter, Chair of Standards Council

Dawn Michele Bellis

Rodger Reiswig

Dwayne Sloan

Randy Krause

Victoria Valentine

Michael Crowley

Jeffrey Foisel

Chairs of documents with Certified Amending Motions
(CAMs):

David Lowrey, Chair of the Technical Committee on
Portable Fire Extinguishers

Brad Cronin, Chair of the Technical Committee on
Inspection, Testing, and Maintenance of Water-Based
Systems

Jarrold Alston, Chair of the Technical Committee on
Fixed Guideway Transit and Passenger Rail Systems

James Biggins, Chair of the Technical Committee on
Energy Storage Systems

PARTICIPANTS CONTINUED

Chairs of documents with Certified Amending Motions
(CAMs) Continued:

Rick Swan, Chair of the Correlating Committee on
Fire and Emergency Services Protective Clothing &
Equipment

Tim Tomlinson, Chair of the Technical Committee on
Structural and Proximity Firefighting Protective
Clothing and Equipment

Albert Yanagisawa, Chair of the Technical Committee
on Respiratory Protection Equipment

Lawrence Ayer, Chair of the Correlating Committee on
National Electric Code

Kenneth McKinney, Chair of Code-Making Panel No. 1

David Humphrey, Chair of Code-Making Panel No. 2

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6

Rodney Belisle, Chair of Code-Making Panel No. 9

Nathan Philips, Chair of Code-Making Panel No. 10

Dirk Mueller, Chair of Code-Making Panel No. 11

Joseph Bablo, Chair of Code-Making Panel No. 12

Kenneth Boyce, Chair of Code-Making Panel No. 13

Eddie Ramirez, Chair of Code-Making Panel No. 14

PARTICIPANTS CONTINUED

Chairs of documents with Certified Amending Motions
(CAMs) Continued:

Michael Weaver, Chair of Code-Making Panel No. 17

Submitters of CAMs:

William Koffel, Koffel Associates, Inc.

Lenon Peake, Koffel Associates, Inc.

Steven Schwartz, CFP Fire Protection, Inc.

Vincent Powers, National Fire Sprinkler Association

Peter Graser, Copperweld Biometallics, LLC and

American Bimetallic Assoc.

Thomas Dunne, IBEW

Ryan Jackson, Self-Employed

Rodney McGee, University of Delaware

Mark Hilbert, MR Hilbert Electrical Inspections &
Training

Indra Wiryadinata, Tesla, Inc.

Daniel Buuck, National Association of Home Builders

Randy Dollar, Siemens Industry and the American
Circuit Breaker Manufacturers Association

Keith Waters, Schneider Electric

Richard Holub, The Dupont Company

Christel Hunter, Cerro Wire

PARTICIPANTS CONTINUED

Submitters of CAMs Continued:

David Bixby, ACCA

Keith Jewell, Self-Employed

Bryce Nesbitt, Obviously Technical Inspections

Jason Potterf, Cisco

Stefan Kozma, Self-Employed

Paolo Rocca, 3M

Thomas Deary, AHRI

Dennis Murphy, EV Charging for All Coalition

Paul Nijssen, EVCHARGE4U, Inc.

Armin Karcher

David Graves, simpleSwitch

Sven Thesen, Sven Thesen & Associates

Shannon Dulaney, It's Electric

Genevieve Cullen, EDTA

Achim Ginsberg-Klemmt, GismoPower LLC

Kevin Arnold, Eaton Bussmann

Eric Sprague, Mitsubishi Electric US, Inc.

Kyle Wiens, iFixit

Matthew Dillon

Lucas Gutterman, US Public Interest Research Group

Alon Doron, EV Seg

Marcelo Hirschler, GBH International

PARTICIPANTS CONTINUED

Submitters of CAMs Continued:

Tom Zornes, Siemens Fire Suppression Systems

Association

Lee Kaiser, Chair of the FSSA Technical Committee

Craig Nixon, FirePro

Jody Leber, CSA Group

Michael Becker, CSA Group

Povl Hansen, STIF

Abid Anwar, Tesla, Inc.

Jeff Knobbe, Alameda County Fire Department and

Bauer Compressor Inc.

TRANSCRIPT OF
2025 NFPA TECHNICAL MEETING
HELD ON
THURSDAY, JUNE 19, 2025

CHAIR CROWLEY: Let's now proceed with discussion on certified amending motion 855-15. Microphone number one, please.

MR. KAISER: Lee Kaiser Orr Protection Systems. I move for acceptance of CAM 15, 855-15.

CHAIR CROWLEY: Thank you. We have a motion on the floor.

Is there a second?

UNIDENTIFIED PARTICIPANT: Second.

CHAIR CROWLEY: We have a second. We'll proceed with discussion of the motion.

MR. KAISER: My name's Lee Kaiser from Orr Protection Systems. I'm chair of the Fire Suppression Systems Association Technical Committee, and I'm the designated representative for Tom Zornes of Siemens. Tom is the FSSA representative on 855.

During development of the 2026 edition of 855, the technical committee removed references to NFPA standards 12, 2001, and 2010 covering C02

1 systems, clean agent systems, and aerosol systems.

2 The motion restores to 855 references the use of
3 carbon dioxide, clean agent, and aerosol
4 extinguishing systems as options for protecting
5 batteries.

6 For decades, these systems have been used
7 to successfully extinguish fires in various types of
8 batteries. For instance, powerhouses at power
9 generating stations often use CO2 systems. Data
10 centers and telecommunications buildings have
11 traditionally used clean agent systems. In
12 transportation related applications, aerosol systems
13 tend to be popular.

14 Over many decades, batteries in these
15 types of facilities have caught fire and been
16 successfully extinguished by these systems. My
17 company, which services non-water-based systems, is
18 aware of three battery fires in the US at customer
19 sites in 2025. Two were in data centers and the
20 other in a telecommunications building. All three
21 were successfully extinguished by the clean agent
22 systems present NFPA 2001 type systems. Clearly,
23 these systems extinguish battery fires.

24 The substantiation provided by the
25 technical committee for removing references to these

standards was, I quote, "other fire control and suppression have not been shown to effectively control lithium battery fires except FPA 15 and 750 systems," end quote. It's clear for the application section of the 855 standard, that the standard applies to all battery types, not just lithium batteries.

 This motion restores references to carbon dioxide, clean agent, and aerosol systems in Chapter 4, which applies to all battery types covered in 855. It doesn't affect the chapters treating protection of lithium ion and lithium batteries. Removing these standards from the systems will limit the options for protecting many common types of batteries. There was no good technical reason to pull the references to these alternative system standards, and I urge you to vote in support of this motion.

CHAIR CROWLEY: Thank you.

 Jim, would you like to offer the TC's position?

MR. QUIETER: Yes. Thank you.

 While Chapter 4 of NFPA 855 applies energy storage systems, section 4.9 specifically applies to rooms or areas within buildings and does not apply

1 to outdoor areas and enclosures.

2 Additionally, the section only applies if
3 the energy storage system exceeds thresholds for
4 kilowatt hours. Typically, building codes require
5 water-based systems in these areas to protect the
6 structure. And section 494 was revised with section
7 494.1 addressing water-based systems. As such, the
8 inclusion of NFPA 12, standard and carbon dioxide
9 systems, NFPA 2001, standard and clean agent
10 extinguishing systems, and NFPA 2010, standard on
11 fixed aerosol extinguishing systems, is no longer
12 appropriate for inclusion within section 494.1.

13 It should also be noted that in this
14 revision 855, it does not prohibit the use of NFPA
15 12, NFPA 2001, or NFPA 2010 compliance systems but
16 only requires that the installation of these systems
17 be based on a report issued as a result of fire
18 testing and explosion testing to assure the
19 performance of these systems is fully understood and
20 is proper for the hazard. Thank you.

21 CHAIR CROWLEY: Thank you, Jim.

22 With that, we will open debate on the
23 motion. Please provide your name, affiliation, and
24 whether you are speaking in support of or against
25 the motion.

1 MR. BALLARD: Hello, this is Bob Ballard.
2 I'm with Victola (phonetic) representing FSSA, and
3 as Lee had mentioned about the Legacy battery --

4 CHAIR CROWLEY: Are you for or against the
5 motion?

6 MR. BALLARD: Oh, I'm for.

7 As Lee had pointed out, the Legacy battery
8 technologies have all been proven that these
9 suppression systems have been good for that, and if
10 you look at that section for Chapter 9, Chapter 9 is
11 referring to going back to section 49, which will
12 not have any of our Legacy systems. And there are
13 two other areas within the standard that still
14 reference agents.

15 So if you look at Chapter 13, there's a
16 comment in there where it still references agents as
17 a suppression system, and Chapter 9 also references
18 agents in the documentation. So I think it is
19 appropriate to put these back into it to keep it
20 consistent within the standard as it is written or
21 proposed.

22 CHAIR CROWLEY: Thank you.

23 Microphone number four.

24 MR. NICHOLAS: Mike Nicholas With Hiller
25 Companies (phonetic) speaking in opposition.

1 The language was drafted to ensure the
2 safety of occupants and responders and does not in
3 any way inhibit the ability for alternative systems
4 to be utilized when they've demonstrated the ability
5 to perform effectively. The language was drafted to
6 ensure that a protection system does not increase
7 the hazard, changing a fire into an explosion.

8 While a fire may not be an optimal
9 outcome, the hazard can be understood and managed
10 whereas an explosion may be unpredictable. For this
11 reason, I encourage you to oppose this.

12 CHAIR CROWLEY: Thank you microphone.

13 Number one.

14 MR. KAISER: Lee Kaiser Orr Protection.

15 Just speaking in response to the comment
16 about explosions, you know, there isn't any history
17 of that happening in the non-lithium battery types,
18 so I mean I just don't see how it's appropriate to
19 apply that line of reasoning -- technical reasoning
20 to those batteries that we already know how they
21 burn, we already know how we extinguish them.

22 CHAIR CROWLEY: Thank you.

23 Microphone number four.

24 MR. DELHAUSEN: Hi, Matt Delhausen, FM,
25 speaking against the motion for the same reasons as

1 the previous speaker had identified about the
2 explosion potential. These systems have not been
3 shown to handle that thermal runaway reaction and
4 deal with that explosion hazard. So FM data sheet
5 5-33 on energy storage systems does not recommend
6 any of these special protection systems either for
7 that reason. Thank you.

8 CHAIR CROWLEY: Thank you.

9 Microphone number four.

10 MR. JENHUTE: Anil Kapai Jenhute
11 (phonetic) opposing this motion. Clean agent or
12 other aerosol-based suppression system can
13 definitely prevent the ignition of vapors generated
14 by the batteries during thermal runaway, but they
15 cannot stop thermal runaway. The agent
16 concentrations that these systems require to be
17 effective also needs to be maintained throughout the
18 event to successfully prevent the ignition of the
19 generated vapors. The maintenance of this agent is
20 generally about 10 to 30 minutes range for a single
21 short system, and thermal runaway could last for
22 hours. For this reason, I oppose this. Thank you.

23 CHAIR CROWLEY: Thank you.

24 Microphone number three.

25 MR. NIXON: Craig Nixon (phonetic) from

1 Fire Process Systems Limited.

2 Listening to those objective --

3 CHAIR CROWLEY: In support or against?

4 MR. NIXON: In support.

5 The references have just been made to
6 thermal runaway. They're all talking related to
7 lithium batteries. This standard covers all
8 stationary energy storage solutions, which includes
9 lead acid, nickel, cadmium, and other technologies.
10 And as Lee said, we've been protecting those risks
11 for many, many years successfully and extinguishing
12 those systems. By precluding them from section
13 four, it gives an indication that you're saying that
14 they are not suitable for those risks, and I suggest
15 you support the motion.

16 CHAIR CROWLEY: Thank you.

17 Microphone number four.

18 MR. HERTZ: Marcela Hertz (phonetic)
19 speaking for myself.

20 I'm just -- sorry, I am just looking -- in
21 opposition to the motion. Sorry.

22 I am just looking at the section
23 immediately following 494.1, which is the section
24 we're discussing, reads as follows, "Other automatic
25 fire control and suppression systems shall be

1 permitted based on reports issued of a result of a
2 large-scale fire and explosion testing in according
3 of section 9.2."

4 So this doesn't eliminate the other
5 systems. It just says they have to provide a
6 report. Thank you.

7 CHAIR CROWLEY: Thank you.

8 Microphone three.

9 MR. NIXON: Yes, Craig Nixon again from
10 Fire Pro in favor of the motion.

11 In reference to the point that gentlemen
12 had just made, definition of large-scale fire
13 testing, all of these technologies have already been
14 tested by UL and approved for class A, B, and C
15 fires. There is no test protocol that defines what
16 those large-scale tests are. Therefore, I suggest
17 you support this motion.

18 CHAIR CROWLEY: Thank you.

19 Is there any further discussion on motion
20 855-15 to accept an identifiable part of public
21 comment number 139?

22 Jim, would you like an opportunity for any
23 final comments?

24 MR. QUIETER: No, I have nothing further
25 to add. Thank you.

1 CHAIR CROWLEY: Thank you.

2 We'll now move to a vote. Before we vote,
3 let me restate the motion. The motion on the floor
4 is to accept an identifiable part of public comment
5 number 139. If you wish to vote in support of the
6 motion and recommend the text on the screen, green,
7 please stand.

8 Okay. Please sit down.

9 If you wish to vote against the motion and
10 recommend the text on the screen, which is in red,
11 please stand.

12 The motion passes. Thank you.

13 Let's now proceed with the discussion on
14 the certified amending motion, 855-21.

15 MR. NIXON: Craig Nixon from Fire Pro.
16 Since the last motion passed, I'll withdraw.

17 CHAIR CROWLEY: Thank you.

18 Certified amending motion 855-21 appeared
19 on our agenda; however, the authorized maker of the
20 motion has chosen not to pursue. Seeing this in
21 accordance with NFPA convention rules, the motion
22 may not be considered by the assembly as a certified
23 amending motion and is removed from the agenda. We
24 will now move on to the next motion.

25 Let's now proceed with discussion on the

1 certified amending motion, 855-24. The maker of the
2 motion actually, we lumped -- 855-35 has suggested
3 to remove so that's been removed.

4 For discussion for this motion is 855-24.
5 Microphone one.

6 MR. LIEBER: Yes, good morning. My name
7 is Jodi Lieber (phonetic) with CSA group, and I make
8 a motion to reject second revision item 78.

9 CHAIR CROWLEY: We have a motion on the
10 floor to reject second revision number 78. Is there
11 a second?

12 UNIDENTIFIED PARTICIPANT: Second.

13 CHAIR CROWLEY: We do have a second.

14 Please proceed with discussion on the
15 motion.

16 MR. LIEBER: Thank you.

17 So the purpose of the motion was actually
18 to add a reference to a consensus standard for the
19 methodology of a large-scale fire test. When at the
20 time the second draft was reviewed, no consensus
21 standard existed for large-scale fire testing.
22 However, since that meeting, CSA CS 800 has been
23 published and does contain an approved method for
24 large-scale fire testing.

25 We appreciate the committee's work to

1 include a test method to NFPA 855, but in lieu of
2 only having the informative Annex to introduce the
3 test method, it's more appropriate to reference a
4 consensus space standard that will be maintained
5 outside of the NFPA standards. So only having any
6 informal Annex to support the requirements can cause
7 confusion. It does not align with the NFPA manual
8 style. So reference to a published consensus
9 standard test method is more appropriate for this
10 document.

11 So in addition to this motion, in support
12 of it was -- a TIA was also submitted to actually
13 add the text of the standard due to the procedural
14 gap in motion. Adding the standard to the NITMAM
15 was not possible due to the NFPA rules, so we had to
16 submit it separately as a TIA.

17 In addition, CS 800 is actively being used
18 today to satisfy the large-scale fire test
19 requirements and accepted by HJs, and the TIA we put
20 in does propose to put the ANSI C 800 standard into
21 23 and 26 versions of NFPA 855 to allow consistency,
22 especially across jurisdictions that may not move to
23 the current edition quickly enough where it still
24 may be enforced.

25 So in this case, the NITMAM is only

1 intended to produce NXG, which is a large-scale fire
2 test procedure and then followed up by the TIA, even
3 though I know they're not tied together, to actually
4 add the consensus standard back in. Thank you.

5 CHAIR CROWLEY: Thank you.

6 Jim, would you like to offer the TC's
7 position?

8 MR. QUIETER: Yes. Energy storage system
9 fires have demonstrated that large-scale fire
10 testing is needed to provide data on how energy
11 storage systems burn when installed in the field,
12 including the impact on adjacent energy storage
13 systems containers. NFPA 855 now contains several
14 requirements for large-scale fire tests.

15 Through the first two editions of NFP 855,
16 there was limited information on the goals and
17 objectives for performing these tests, and there was
18 no published standard on a large-scale fire testing
19 for energy storage systems. In order to provide
20 this knowledge to users of the document, including
21 testing labs and others, Annex G11 was developed to
22 provide the how and why of this guidance to the
23 industry.

24 As Mr. Lieber said, the CSA standard was
25 not available. However, just that -- now I just

1 want to point out that even though a standard is
2 available now, it does not necessarily mean that it
3 meets the goals and objectives of what the committee
4 may be looking for in these large-scale fire tests
5 also. So it has not been reviewed, and the
6 committee has done a lot of work in putting G11 into
7 place and we hope that it remains in the document.
8 Thank you.

9 CHAIR CROWLEY: Thank you, Jim.

10 With that, we'll open debate on the
11 motion.

12 Please provide your name, affiliation, and
13 whether you're speaking in support of or against the
14 motion.

15 Microphone number two please.

16 MR. DURN: Aba Durn (phonetic) Tesla,
17 speaking against the motion in opposition of the
18 motion.

19 Large-scale fire testing for commercial
20 energy storage systems is absolutely necessary.
21 Tesla is a huge advocate of large-scale fire testing
22 and helped conduct some of the first large-scale
23 fire testing for the NFPA research foundation. We
24 believe the inclusion of Appendix G11 is absolutely
25 necessary at this time while UL standards and

1 engagement diligently works to develop the UL 9540A
2 large-scale fire test.

3 If we remove this Annex right now, we
4 remove the guidance from manufacturers to perform
5 large-scale fire testing to satisfy the intent of
6 the 2026 NFP 855 requirement. More importantly,
7 what I will note is UL 9540 is the standard for
8 safety regulating energy storage systems.

9 Accompanying that UL 9540A is the test method for
10 the large-scale fire testing methodology which will
11 be expanded upon to include the commercial large-
12 scale fire test.

13 I will point out that CSAC 800 is a
14 testing protocol for energy storage system
15 reliability and quality assurance programs, and I
16 will read from C 800. This standard is intended to
17 be a standalone document that does not interact with
18 other safety or performance standards as it is
19 intended to focus on reliability and quality
20 assurance for long-term durability. This commercial
21 large-scale fire test will be developed through the
22 UL 9540 task group and that should be the large-
23 scale fire test for industry.

24 Until that time, Appendix G11 should
25 remain to give manufacturers that guidance. Thank

1 you very much.

2 CHAIR CROWLEY: Thank you.

3 Microphone number four, pleas.

4 MR. COFF: Bill Coff, Coff Associates
5 (phonetic), and while I'm a representative to CALSA
6 (phonetic), they have not taken a position on this
7 CAM, so I'm not speaking for them on this CAM.

8 I'm speaking in opposition to the motion
9 on the floor because will create a problem that we
10 are trying to address in a subsequent CAM for
11 residential systems. You will have a requirement in
12 the standard that references a large-scale fire test
13 with absolutely no guidance on what that is. Now I
14 know the proponent said, trust me, we have a TIA to
15 address that. We don't know that the TIA will go
16 through. So to the extent this does need to be
17 linked to a potential subsequent TIA, and at that
18 time, we can reevaluate it. But I do not recommend
19 that you delete the guidance that's currently in the
20 standard in lieu of or in favor of a trust me, we'll
21 take care of this in a TIA.

22 CHAIR CROWLEY: Thank you.

23 Microphone number one.

24 MR. DUNBERG: Joshua Dunberg (phonetic),
25 CSA group speaking in favor of the motion.

1 Just for reference, so we're not trying to
2 remove any requirements of a large-scale fire test.
3 we absolutely recognize the value to the industry,
4 the value for protection, the value for first
5 responders, but including recommendations that are a
6 number of "should" statements in an Annex as a test
7 method is not really appropriate for an NFPA
8 standard. It really doesn't provide any additional
9 requirements for a manufacturer to assess their
10 product to, and in lieu of recommending a consensus
11 standard as a requirement, it actually provides
12 additional confusion about how these tests can or
13 should be run. There's no way to comply with the
14 test methods of Annex G.

15 As my colleague noted, we have produced a
16 consensus standard that can be referenced. It does
17 reference the same test requirements for producing
18 data that should be analyzed by a registered design
19 professional. It is a method to conduct tests that
20 provides consistent data and a consistent method.
21 In lieu of having the requirements of 855 in an
22 Annex that are "should," we recommend having a
23 reference to a consensus standard in general. Thank
24 you.

25 CHAIR CROWLEY: Thank you.

1 Microphone number four.

2 MR. HILLER: Mike Nicholas Hiller
3 (phonetic) speaking in opposition. Large-scale fire
4 test requirements were introduced to ensure the
5 evaluation of propagation between ESS as were
6 understood and that appropriate mitigations were in
7 place to ensure potential fire spread between
8 containers was limited even if a fully developed
9 fire condition existed due to outside impacts like
10 water intrusion, lightning strikes, and human error.

11 Elimination of the Annex would leave a
12 significant gap in the standard, and there is no
13 published standard that provides similar levels of
14 information. While CSA standard does provide some
15 guidance, it's limited to approximately two pages of
16 information and is currently not a substitute for
17 the existing NFPA 855 language. The task or the
18 technical committee feels the elimination of the
19 Annex would leave a significant gap in the standard
20 and there's no published standard that provides
21 similar levels of information at the present time.
22 Thank you.

23 CHAIR CROWLEY: Thank you.

24 Microphone number four.

25 MS. SCHWAB: Yes, hello. My name is

1 Latonya Schwab (phonetic) with UL Solutions, and I'm
2 speaking against this particular motion in
3 opposition in the reasons that have already been
4 cited. Number one was that -- excuse me, the
5 technical committee for 855 has spent a significant
6 amount of time to provide guidance in terms of a
7 large-scale fire test, which is already required in
8 the body of 855. It's been an understanding for the
9 technical committee that because there was no
10 consensus standard or no documented test
11 methodology, this Annex was created to provide
12 guidance to a large-scale fire test.

13 In addition, what has already been stated
14 previously regarding C 800 is that it is a quality
15 and reliability standard for energy storage systems,
16 and it's not limited to a large-scale fire test.
17 There's only one test out of a number of tests in
18 that particular standard that was referenced. So in
19 my opinion, I support the opposition of this
20 particular motion to delete NXG. I think it is
21 effective in remaining in 855 at this time as well
22 as allowing for time for standards such as 9540A and
23 the work that's being done as well to allow for
24 reference to those consensus documents once that
25 work has been completed and the technical committee

1 for 855 has had a chance and opportunity to review
2 those at a future date. Thank you.

3 CHAIR CROWLEY: Thank you.

4 Is there any further discussion on the
5 group or on the motion to reject second revision?

6 And Jim, would you like to -- opportunity
7 for final comments?

8 MR. QUIETER: Yes. I would just like to
9 reiterate that this document, G11, was developed to
10 provide guidance to provide the "how" and "why" of
11 why these tests are needed and how the committee
12 feels what critical information is required from the
13 test. And as was just stated, it is the product of
14 five-plus years of work of a task group to develop
15 this guidance. I ask that the quorum here vote
16 against the motion. Thank you.

17 CHAIR CROWLEY: Thank you, Jim.

18 We'll now move to a vote. Before we vote,
19 let me restate the motion. The motion on the floor
20 is to reject second revision number 78. If you wish
21 to vote in support of the motion and the recommended
22 text on the screen showing green, please stand.

23 Okay. Thank you. Be seated.

24 If you wish to vote against the motion and
25 the recommended text on the screen which is in red,

1 please stand.

2 Yeah, this one isn't as easy to
3 differentiate. So we're going to revote, and we'll
4 do count. So please sit.

5 So again, we will revote. I'll restate
6 the motion one more time before we vote. Let me
7 restate the motion. The motion on the floor is to
8 reject the second revision number 78.

9 If you wish to vote in support of the
10 motion and the recommended text, which is the green,
11 please stand and be patient with us. We're going to
12 do account.

13 All right. Please sit. Thank you.

14 If you wish to vote against the motion and
15 the recommended text on screen showing red, please
16 stand.

17 All right. Thank you very much. Be
18 seated, please.

19 Okay. The results of the vote are 181 in
20 support of the motion and recommended text on screen
21 showing green and 344 against the motion and the
22 recommended text in red so the motion has failed.

23 Let's now proceed with the discussion on
24 the certified amending motion, 855-29. Let's now
25 proceed with the discussion on the certified

1 amending motion, 855-29.

2 UNIDENTIFIED PARTICIPANT: Not present.

3 CHAIR CROWLEY: Say that again.

4 UNIDENTIFIED PARTICIPANT: Not present.

5 CHAIR CROWLEY: Okay. This vendor is not
6 present.

7 Standby.

8 Okay. Certified amending motion 855-29
9 appeared on our agenda; however, no authorized
10 individual has signed in nor approach the
11 microphones to make the motion. Seeing that the
12 maker of the motion nor an identified designated
13 representative has approached to make a motion, CAM
14 855-29, in accordance with convention rule section
15 2.7, the motion may not be considered by the
16 assembly as a certified amending motion and is
17 removed from the agenda.

18 We will now move on to the next motion.
19 Let's now proceed with discussion on certified
20 amending motion. 855-36. 855-36.

21 Oh, that's the one that was grouped.
22 Okay.

23 Let's now proceed with discussion on the
24 certified amending motion, 855-31.

25 Microphone number one please.

1 MR. HENSON: Good morning. I'm Paul
2 Henson (phonetic) from the company Stiff. I'm here
3 to make the motion 855-31 to accept the public
4 comment number 266.

5 CHAIR CROWLEY: I heard a second. We have
6 a motion on the floor and we do have a second, so
7 please proceed with discussion on the motion.

8 MR. HENSON: This motion, if approved,
9 will place layers of protection for explosion
10 mitigation using both NFPA 68 as a passive solution
11 as well as NFPA 69 as an active ventilation system.
12 This motion would only apply to many factors not
13 using a performance-based design.

14 Over the past 20 months, our organization
15 has been involved in these discussions listening to
16 all the NFPA 855 draft meetings and explosion text
17 groups meetings to ensure we are update on the
18 standard changes. The new 2026 version of NFPA 855
19 will remove NFPA 68 as a standalone option on energy
20 storing systems.

21 We are not opposing and challenging that
22 removal as we always believe in multiple layers of
23 explosion protection on ESS. Our motion, however,
24 is to challenge the NFPA 69 active ventilation
25 systems are used as a standalone solution on ESS as

1 we believe that we will put first response inside
2 such risk.

3 NFPA 69 ventilation system and ESS are
4 active systems with a lot of electronic components
5 that must all function in externality, whether there
6 is a thermal runaway event in the ESS. There are
7 many potential failure points in these systems
8 making it important for ESS to have a second layer
9 of explosion protection that is passive, which does
10 not require any electricity and is fail safe.
11 Having this passive solution as a second layer of
12 protection will provide additional safety to first
13 responders, site operators, and facilities.

14 We are seeing the same multiple layer of
15 explosion protection adopt elsewhere including
16 countries like in California, New York and involving
17 standards like ESS in Europe, which are recommending
18 using both 68 and 69. Thank you.

19 CHAIR CROWLEY: Thank you.

20 Jim, would you like to offer the TC's
21 position?

22 MR. QUIETER: Yes, thank you.

23 The previous edition of 855 permitted a
24 system complying with either NFPA 68 standard on
25 explosion protection by defecation venting or NFPA

1 69 standard on explosion prevention systems. NFPA
2 68 was removed as a standalone option this cycle.
3 This is a result of better data from fire testing
4 that shows the composition of the gases vented
5 during a thermal runaway event. The data shows that
6 these gases are a gas mixture primarily composed of
7 hydrogen concentrations exceeding 20 percent by
8 volume.

9 Based on this, the technical committee
10 combined the explosion potential of an ESS as one,
11 topic explosion control and prevention in the
12 revision of NFPA 855. With this focus on the
13 prevention of explosion, NFPA 69, rather than
14 controlling the damage, NFPA 68. In line with this
15 decision, the TC placed a focus on NFPA 69 but did
16 not specifically prohibit the application of NFPA 68
17 inappropriate instances as users can still get to
18 the deletion vending requirements through the
19 application of NFPA 69 initially.

20 Additionally, this path is also supported
21 by NFPA 68, which illustrates this in several places
22 within that document. Section 133 NFPA 68 says the
23 standard does not apply to emergency events for
24 pressure generated during runaway exothermic
25 reactions. Thermal runaway. And section A726 of 68

1 states the susceptibility of a turbulent system to
2 defibration increases with increasing values of the
3 fundamental burning velocity.

4 In particular compound values close to
5 that of hydrogen are highly susceptible to
6 defibration when ignited under turbulent conditions.
7 This should be noted that vending tends to inhibit
8 the transition from deflation to defibration, but it
9 alone is not effective methods of protecting against
10 the effects of a defibration once this transition
11 has occurred. Where the likelihood of defibration
12 exists, alternate solutions such as 69 should be
13 considered.

14 Section K 111 of 68 says, in practice
15 hydrogen concentrations exceeding approximately 20
16 percent can readily undergo deflation to defibration
17 transition in larger enclosures, particularly those
18 with congestion, then the methodology of NFPA 68
19 would no longer be applicable. Based upon this
20 information within 68 itself, the focus for
21 explosion prevention within energy storage systems
22 should be NFPA 69, NFPA 68 should no longer be
23 considered as a standalone option. Thank you.

24 CHAIR CROWLEY: Thank you, Jim.

25 With that, we will open debate on the

1 motion. Please provide your name, affiliation, and
2 whether you are speaking in support or against the
3 motion.

4 Microphone one, please.

5 MR. JENHUTE: Anil Kapai Jenhute speaking
6 in support of the motion. I sit on NFP 855, 68 and
7 69 committees right now. The understanding is both
8 of these standards, 68 and 69, were developed before
9 our industry started seeing the ESS type geometries
10 and both methodologies have issues right now. We
11 don't have a silver bullet.

12 We cannot say for certainty that 69 is
13 going to work for all geometries, so my
14 recommendation is to have both until the industry
15 has the data. The trend where this industry is
16 going, we are having high density enclosures with
17 limited free air volume and the cell size is getting
18 bigger day by day. So that also supports having
19 both mitigations and layer of protection as
20 recommended by the submitter of this motion. Thank
21 you.

22 CHAIR CROWLEY: Thank you.

23 Microphone number one, please.

24 MR. PIERCE: Hi. I am Grant Pierce with
25 Vigilex Energy and I'm in support of this motion.

1 For years, panel manufacturers have
2 advised clients and OEMs to use layers of explosion
3 protection on battery energy storage containers due
4 to the risk of explosions from thermal runaway.
5 This recommendation has been to use both NFPA 68 as
6 a passive solution together with NFPA 69 as an
7 active solution. So this is not a new change for
8 us.

9 These are the safest methods in addition
10 to using a performance-based design to prevent
11 energy to first responders and others during a
12 thermal runaway event and battery energy storage.
13 We do not think either NFPA 68 or NFPA 69 should be
14 used as a standalone method. So the removal of 68
15 as an option is not a concern to us. The concern is
16 having also NFPA 69 used as a standalone method.

17 Many best OEMs, including some of the
18 largest in the world, follow this approach as they
19 understand the risk particularly to first responders
20 and operators. This year, organizations invested a
21 substantial amount of money in third party NFPA 68
22 testing, defibrillation testing on battery energy
23 storage and enclosures to further prove using NFPA
24 68 for energy storage. These tests included
25 stoichiometric scenarios and were conducted through

1 four independent organizations of DexCon RS and two
2 large fire protection engineering firms whose
3 members sit on NFPA 855 committee. Every test
4 performed, over 25 in total, all the NFPA 68 panels
5 successfully opened as intended. On a side note, we
6 will be publishing this data soon.

7 In addition to our testing, battery energy
8 storage manufacturers have successfully performed
9 NFPA 68 degradation field testing on their
10 containers, some of which we have witnessed in
11 person and panels all opened as intended. NFPA 69
12 active ventilation systems when properly designed,
13 installed, and maintained can be effective for
14 preventing an explosion and best. However, for
15 best, they require complex CFD modeling as that is
16 not always performed correctly, especially when
17 designed outside the U.S.

18 There are also many electrical and
19 mechanical failure points as well as the quarterly
20 maintenance inspection requirement in NFPA 69
21 regularly applied to the best industry. Also, as a
22 previous person mentioned, the larger cells making
23 NFPA 69 systems extremely challenging to be a silver
24 bullet to be the only solution for NFPA 69 in energy
25 storage.

1 The systems are going to be in the field
2 for 15 plus years sitting out there, so it is
3 imperative that they do have a system that can be
4 designed when they're called to do so. Just
5 yesterday morning in a technical session here, a PhD
6 fire engineer presenting on this topic, who listed
7 some of the NFPA failure points as fan failure,
8 clogging sensor or wire failures, Louvre
9 malfunctions, controller failures, loss of power, or
10 backup battery failure and these are just some of
11 them.

12 I see that not to invalidate the need for
13 NFPA 69, it's absolutely needed, but a secondary
14 solution is needed until the industry evolves to
15 find an actually great solution. But right now,
16 both are needed.

17 CHAIR CROWLEY: Thank you.

18 Is there any further discussion on motion
19 855-31 to accept public comment number 266?

20 Microphone three.

21 MR. HARD: Mike Hard, Hard Fire
22 Suppression. I'm representing myself. I'm just
23 curious how the editors got --

24 CHAIR CROWLEY: In support or against?

25 MR. HARD: In support. In support. How

1 did the editors use or allow the word "reliable" to
2 go through? Who decides what's reliable? I know
3 it's not part of this, but I just don't know how
4 that is quantifiable or how anybody can follow that.
5 Thank you.

6 CHAIR CROWLEY: Thank you.

7 Microphone number one.

8 MR. PIERCE: Grant Pierce with Vigilex
9 Energy in favor of this. I want to add one more
10 comment regarding this. Some of the points that
11 were made earlier was that NFPA 68 is not allowed or
12 designed for this industry. However, in the new
13 code being added right now, there is a new verbiage
14 in there being added that states that NFPA 68 is
15 required but partial volume degradation.

16 So the committee is already putting into
17 the code that NFPA 68 is a necessity. They're just
18 saying as a partial volume deflation. So those
19 calculations are still as a partial volume are still
20 reliant on a working NFPA 69 system. They're not
21 independent of an NFPA 69 system, which is what is
22 needed in this industry. In conclusion, we ask the
23 room to please vote yes on this motion for both NFPA
24 68 and 69. Thank you.

25 CHAIR CROWLEY: Thank you.

1 One more time. Is there any further
2 discussion on motion 855-31 to accept public comment
3 number 266?

4 Jim, would you like an opportunity for any
5 final comments?

6 MR. QUIETER: Yes, thank you.

7 Unfortunately, the task group chair who
8 addressed this and most of the task group committee
9 members who would be able to provide the technical
10 aspects of this aren't here, so I'll just try to sum
11 it up. Document only removes NFPA 68 as a
12 standalone. If you apply NFPA 69, you will still
13 get to NFPA 68. We are not saying that you cannot
14 use 68, we're just simply saying that you cannot
15 rely on 68 particularly because we're seeing that in
16 many when you try to do the evaluation for NFPA 68
17 for defibration panels, many times you have a
18 situation where you cannot get enough panels in
19 place to sufficiently allow the venting.

20 So lastly, based upon what was in NFPA 68,
21 as I mentioned in the opening statement, there's
22 many points within 68 where they effectively say as
23 standalone, they are not applicable. So I ask that
24 the groups support the rejection of this motion.
25 Thank you.

1 CHAIR CROWLEY: Yeah, thank you.
2 So with that we'll now move to a vote.
3 Before we vote, let me restate the motion. The
4 motion on the floor is to accept public comment
5 number 266. If you wish to vote in support of the
6 motion and recommended text on the screen in green,
7 please stand.
8 Okay. Thank you. Please be seated.
9 If you wish to vote against the motion and
10 recommended text on the screen which is in red,
11 please stand.
12 The motion fails. Thank you.
13 Let's now with discussion on certified
14 amending motion 855-12.
15 Microphone number one.
16 MR. COFF: Bill Coff with Coff Associates
17 representing CALSA. I would like to make a motion
18 to reject second revision 20.
19 UNIDENTIFIED PARTICIPANT: Second.
20 CHAIR CROWLEY: There is a motion on the
21 floor to reject second revision 20 and there is a
22 second. Please proceed with the discussion on the
23 motion.
24 MR. COFF: First, we really shouldn't be
25 here today discussing this because this is new

1 material introduced during the second draft portion
2 of our process. SR 20 is based upon PC 268, which
3 was our public comment to delete the entire section.
4 Certainly not introduced a new test standard. PC 95
5 which was a comment to add UL 9540B which was linked
6 to FR 102, which doesn't address this paragraph, and
7 while it wasn't in the committee statement,
8 certainly PC 95 during committee discussion was
9 identified as new material and PC 313 which added an
10 Annex note related to PC 95.

11 So this is new material that the public
12 has never had an opportunity to comment on. Now to
13 the technical issues, Chapter 15 only addresses one
14 in two family dwellings and townhouses. There is a
15 limited rating for those systems at 20 kilowatt
16 hours for individual units. The paragraph only
17 applies if I am trying to reduce the spacing
18 requirements between units or between units and
19 openings.

20 In addition, if we look at the text that
21 came out of second revision, not only does it add a
22 new test, which I'll talk about in a moment, but it
23 deletes or equivalent to UL 9540A. So in other
24 words, there is only one test standard that you can
25 use to meet the requirements of this paragraph.

1 Now, what is our concern with large-scale
2 tests? You've heard a lot of discussion about this.
3 CALSA is not opposed to an appropriate large-scale
4 test for residential units. Our concern is that the
5 language submitted in the second draft refers to no
6 test standard. The discussion we just had for Annex
7 G doesn't apply. Annex G does not apply to Chapter
8 15 systems.

9 So who determines what the test is? It
10 doesn't even say it's an approved test standard. It
11 just says to a test standard. So as a manufacturer,
12 I go out and I do a test. I think it's a large-
13 scale test. AHJ says no, sorry, that's not
14 acceptable. One AHJ wants a manufacturer to do this
15 test. Another AHJ wants another test. At least in
16 our previous action, Annex G provided a recommended
17 test protocol for commercial systems.

18 Again, we are not opposed to a large-scale
19 test. There are members of CALSA that are working
20 with the UL 9540 technical committee to develop an
21 appropriate large-scale test procedure. Thank you.

22 CHAIR CROWLEY: Jim, would you like to
23 offer the TC's position?

24 MR. QUIETER: Yes, thank you.

25 Chief 15 of NFPA 855 addresses energy

1 storage systems installed in one and two-family
2 dwellings and townhouse units. This motion seeks to
3 -- what part of this motion does it seeks to remove
4 the reference to section 1541, which addresses
5 locations in these one two family dwellings in
6 townhouse units where energy systems can be stored
7 and eliminate large-scale fire testing for the
8 systems.

9 Section 1541.3B provides a means for
10 permitting the installation of residential energy
11 storage systems with less than a prescribed three-
12 foot separation from doors and windows when the
13 systems UL 9540 listing is based upon fire and
14 explosion testing complying with Section 1513. This
15 is a recognition that at residential energy storage
16 systems that are installed less than three feet from
17 each other or an opening to the dwelling that in
18 these cases additional level of safety is necessary.

19 Section 1513 specifies the testing the UL
20 9540A testing or a large-scale fire testing. Large-
21 scale fire testing provides the critical data the
22 supplements, the finding of the UL 95 test protocol
23 and provides critical information permissible
24 performance-based reductions for unit to unit and
25 unit opening spacing less than three feet.

1 I want to point out that large-scale fire
2 testing for residential systems is really not a new
3 concept. In this edition of 855. The creation of
4 Chapter 15 in the 2020 edition of 855 for detached
5 one and two-family dwellings and townhouses was
6 based upon controlling an ESS fire event by limiting
7 the size of event to 20 kilowatt hours. This was
8 done by limiting an individual a best to 20 kilowatt
9 hours inquiring that ESS units be separated by three
10 feet unless they are subjected to large-scale fire
11 tests in accordance with UL 9548 or equivalent.

12 In the 2020 edition of NFPA 855, Chapter
13 15 pointed back to the large-scale fire test
14 requirements In Chapter 4. The same large-scale
15 fire testing was applied to both residential and
16 commercial units. It should be noted that a
17 tentative in interim amendment in TIA 23-1 was
18 issued in August 2023 and added the requirements for
19 the expired explosion testing in accordance with the
20 UL 9540A for individual residential ESS systems
21 separate by less than three feet. This included
22 requirements fire propagation for decomposition of
23 generated gases.

24 This TIA text was refined and clarified
25 during the revision cycle resulting in the changes

1 that are now within Chapter 15 of NFPA 855. Thank
2 you.

3 CHAIR CROWLEY: Thank you, Jim.

4 With that we'll open the debate on the
5 motion. Please provide your name, affiliation, and
6 whether you are speaking in support of or against
7 the motion.

8 Let's go with microphone number one first.

9 MS. HAYES: Thank you. Megan Hayes with
10 the National Electrical Manufacturers Association in
11 support of the motion.

12 NEMA supports CAM 855-12 because a large-
13 scale fire test for residential ESS does not exist
14 at this time. Thank you.

15 CHAIR CROWLEY: Thank you.

16 Microphone number three,

17 MR. DURN: Aba Durn with Tesla speaking in
18 support of 855-12.

19 I just want to reiterate safety is in
20 everyone's best interest with energy storage
21 systems. Unlike the previous discussion we had
22 where Appendix G11 provided sufficient guidance for
23 manufacturers to conduct this test, we do not have
24 that in Chapter 15. The requirement for fire and
25 explosion testing in accordance with the UL 9548

1 remains, but we added this additional large-scale
2 fire test with absolutely no guidance.

3 As such, the residential large-scale fire
4 test is premature and puts the cart in front of the
5 horse. There is no defined test method at this time
6 nor any comprehensive guidance equivalent to what is
7 provided in Appendix G11 for commercial. Without
8 this consensus developed test method, this
9 requirement will disrupt the residential energy
10 storage system industry.

11 A lot of my job is speaking to the UL
12 9540A with fire departments across this nation, and
13 in those discussions -- I just want to be very
14 clear, there's absolutely no consensus on the most
15 basic facet, which is what is the intended failure
16 mode meant to be for residential energy storage
17 systems. When a consensus based residential large-
18 scale fire test is developed, absolutely, we should
19 pursue that through the TIA process. That is why
20 that exists.

21 You know, I'll speak directly for Tesla
22 but also the manufacturers that in close
23 communication with, we are not opposed to any
24 additional test. What we are opposed to is
25 requiring a test that does not exist, and for those

1 reasons I urge a committee to support. Thank you.

2 CHAIR CROWLEY: Thank you.

3 Is there any further discussion on motion
4 855-12 to reject second revision number 20?

5 Jim, would you like the opportunity for
6 any final comments?

7 MR. QUIETER: I have no further comments.
8 Thank you.

9 CHAIR CROWLEY: Thank you.

10 We will now move to a vote. Before we
11 vote, let me restate the motion. The motion on the
12 floor is to reject second revision number 20.

13 If you wish to vote in support of the
14 motion and recommended text on the screen showing
15 green, please stand.

16 Okay. Thank you. Be seated.

17 If you wish to vote against the motion and
18 recommended text on the screen showing red, please
19 stand.

20 Okay. It is close enough. We're going to
21 go ahead and do a count just to make sure we do this
22 justice, so please sit down.

23 Again, if you wish to vote in support of
24 the motion and the recommended text on the screen in
25 the green, please stand, and we do appreciate your

1 patience while we get a count.

2 Okay. Please be seated.

3 If you wish to vote against the motion and
4 the recommended text on the screen in the red,
5 please stand.

6 All right. Please be seated, and again, I
7 want to thank you for your patience and I do want to
8 thank NFPA staff for helping us collect the votes by
9 doing the count.

10 Just informational, we will be breaking
11 for lunch after we complete the motions on 855, and
12 we'll be giving you a full hour, so I'll let you
13 know what time to be back once we do that.

14 So the result of the vote is 132 in
15 support of the motion and 263 against the motion has
16 failed.

17 Okay. Once again for the record, 132 for,
18 263 against. The motion has failed.

19 That concludes consideration for all the
20 certified amending motions on NFPA 855. I want to
21 personally thank you. We are going to break for
22 lunch, and upon return I'm going to be turning it
23 over to Victoria Valentine, NFPA standards council
24 member who will be addressing motions on 1850.

25 With that, I do have a favor to ask of

1 everybody. It may seem nonsensical, but I'm going
2 to ask you all to, when you come back from lunch,
3 bring your best techno vibes so we can get the hand
4 count back up. I appreciate your patience and
5 professionalism this morning. We really do
6 appreciate that.

7 Keep your voting devices. Do not put them
8 in the return bins. Please keep your voting
9 devices. Thank you.

10 Come back at 1:15. Thank you. 1:15.

11 MS. VALENTINE: Welcome back, everyone.
12 Before we continue with today's agenda, we have made
13 some modifications to the testing devices system and
14 we will be running a test. This actually will only
15 be a test as we will continue with hand counts
16 today, but we need this baseline to make sure we can
17 bring things back online down the road.

18 So if you have your voting devices ready,
19 we will today's question is going to be are we all
20 expecting a cookie? In today's meeting this
21 afternoon, please press one or the green button for
22 yes or two and the red button for no. As we run
23 this test, it will take a moment to get a tally.

24 Although you see the motion -- for those
25 who may have just walked in, we are voting on

1 cookies.

2 If you are not seeing if the okay on your
3 screen as you are voting, please raise your hand.
4 Again, if you do not see the okay on your screen as
5 you are voting, please raise your hand. If the okay
6 does pop up, you may put your hand down, but again,
7 if you do not see the okay on your voting device,
8 please keep your hand in the air.

9 If you have not voted yet, we are in the
10 test vote. Please vote with your device. Again,
11 they are trying to collect some baseline
12 information.

13 Thank you. Thank you very much. If you
14 do have hands up, you may put them down. Again,
15 this was just a baseline. We are going to continue
16 with hand counts for today's votes.

17 Continuing on with our agenda, we are
18 going to move to the next item, which is NFPA 1850,
19 standard on protective ensembles for structural and
20 proximity, firefighting and self-contained breathing
21 apparatus, SCBA. We will proceed by calling the
22 certified amending motions on NFPA 1850 in the order
23 in which they were published in your agenda. For a
24 full list of these certified amending motions,
25 please reference the motions Committee 2025 annual

1 report beginning on page four.

2 Rick Swan, will you present the chair
3 report?

4 MR. SWAN: Thank you, Madam Chair.

5 The report of the correlating committee
6 for fire and emergency services, protective clothing
7 and equipment is presented as found in the first
8 draft report and second draft report for the annual
9 2025 revision cycle of NFPA 1850 standard on
10 selection, care and maintenance of protective
11 ensembles for structural and proximity firefighting
12 and open circuit self-contained breathing apparatus,
13 SCBA.

14 The revisions were submitted to letter
15 ballot of the responsible technical Committees and
16 correlating committee in accordance with regulations
17 governing the development of NFPA standards. The
18 report and ballot results can be found on the next
19 edition tab of the document information page for
20 NFPA 1850 at www.nfpa.org/1850next.

21 MS. VALENTINE: Thank you, Rick.

22 We will proceed to the certified amending
23 motions, but we have been informed that the maker of
24 those motions will not be presenting them. So as no
25 certified amending motions were presented for action

1 of the NFPA voting membership today, NFPA 1850
2 becomes a consent standard that will be forwarded
3 directly to the standards council for issuance or
4 other action in accordance with the regulations. We
5 would like to thank the committee for their work,
6 and we'll now move on to the next standard NFPA 70,
7 National Electrical Code.

8 Larry Ayer, will you present the chair
9 report?

10 MR. AYER: I will defer all comments to
11 the panel chairs as noted.

12 MS. VALENTINE: Okay.

13 MR. AYER: The report of code making panel
14 six is presented, found in the first draft report
15 and second draft report for the annual 2025 revision
16 cycle at NFPA 70 National Electric Code. The
17 revisions were submitted to letter ballot of the
18 responsible committees in accordance with the
19 regulations governing the development of NFPA
20 standards. The reports and ballot results can be
21 found in the next edition tab of the docket of
22 information page for NFPA 70 at www.nfpa.org/70next.

23 MS. VALENTINE: Thank you, Larry.

24 Now let's proceed with the discussion on
25 the certified amending motion 70-91.

1 MR. MCKINNEY: Good afternoon, everyone.
2 I'm Ken McKinney with UL Solutions and also chair of
3 CMP1, and I'd like to speak on an opposition to the
4 motion.

5 MS. VALENTINE: Wait, we haven't had the
6 motion on the floor yet.

7 MR. MCKINNEY: Oh, sorry.

8 MS. VALENTINE: Microphone one.

9 MR. HOLUB: Good afternoon. My name is
10 Richard Holub (phonetic). I'm with DuPont
11 representing the American Chemistry Council. I'd
12 like to speak in support of CAM 70-91. I reject
13 7696, second revision motions to reject 7696. I'm
14 the maker of the motion. Yes.

15 MS. VALENTINE: Okay. There is a motion
16 on the floor to reject second revision number 7636.
17 Is there a second?

18 UNIDENTIFIED PARTICIPANT: Second.

19 MS. VALENTINE: We do have a second.
20 Please proceed with the discussion on the motion.

21 MR. HOLUB: Thank you. So in the second
22 draft, we added this language, this last phrase that
23 says when such doors are open or can be open 90
24 degrees. Essentially this creates a conflict for
25 all existing installations. We have switchgear that

1 may be positioned with its back against the wall.
2 We have a required space of 42 inches. The
3 switchgear has a 22-inch-wide section. We open the
4 door 90 degrees and we now only have 20 inches of
5 available space.

6 In the past, the way this has been
7 addressed is we've had the ability to open the door
8 past the 90-degree point. As long as you could get
9 the door open far enough that you could meet this
10 24-inch-wide requirement, we were acceptable. Now
11 we're basically creating a violation for all the
12 existing installations out there, motor control
13 centers, switch gear, et cetera, where the doors are
14 being forced to open at 90 degrees, which is the
15 worst-case scenario, and it's going to cause
16 problems for replacing all the existing equipment.
17 Thank you.

18 MS. VALENTINE: Thank you.

19 Larry, would you like to offer the panel's
20 position?

21 MR. AYER: I like to defer to the panel
22 one chair for comment.

23 MR. MCKINNEY: Thanks, Mr. Chair.

24 Again, I'm Ken McKinney with UL Solutions
25 chair of CMP1. Just some background on this second,

1 7636 which made this change was based on PC 811.

2 Accordingly, the concept of door opening --

3 MS. VALENTINE: I'm sorry for the record,
4 can you tell us for or against?

5 MR. MCKINNEY: Oh, I'm in opposition of
6 the motion.

7 MS. VALENTINE: Thank you.

8 MR. MCKINNEY: Thanks.

9 Accordingly, the concept of the door
10 opening and encroaching on access to an egress from
11 the two-foot path was addressed by public input
12 4234, which public comment 811 correctly pointed to.
13 Therefore, the committee did not consider this new
14 work as was inferred in the NITMAM.

15 The intent of this revision was to
16 establish the worst case with regards to access and
17 egress, which would be a door opened at 90 degrees.
18 Even if a door can open more than 90 degrees, that
19 doesn't guarantee that it will. Requiring a minimum
20 access and egress space when the doors are open, 90
21 degrees ensures accessibility is never compromised
22 due to a door being partially open or door swing.
23 Thank you.

24 MS. VALENTINE: Thank you.

25 Microphone two.

1 With that, we officially open the debate,
2 so please provide your name, affiliation, and
3 whether you're speaking in support or against the
4 motion.

5 Microphone two.

6 MR. MCCAMUS: Thank you. I'm John McCamus
7 (phonetic) representing Eaton, and I'm speaking
8 against Motion 70-91. Maintaining safe egress for
9 electrical workers is critical. I personally know
10 electricians who have been trapped behind open doors
11 while an arcing event was taking place and their
12 exit was impeded by the doors being open into their
13 path of egress. Again, I'm asking that you do not
14 support this motion. Thank you.

15 MS. VALENTINE: Thank you.

16 Microphone three.

17 MR. NESBITT: Hello, my name is Bryce
18 Nesbitt, and that's way too loud. Sorry about that.

19 I work as an inspector and a permit
20 consultant and so largely do retrofits where we come
21 in years later --

22 MS. VALENTINE: And are you for or against
23 the motion?

24 MR. NESBITT: I am for the motion. I'm
25 speaking in my personal capacity.

1 And the issue is that when we touch those
2 panels, we have to bring them up to code, and that
3 can be completely out of scale. I'm in favor of
4 this motion because I can imagine the difficulties
5 in permitting an existing installation that has a
6 noncompliant door. Thank you.

7 MS. VALENTINE: Thank you.

8 Microphone two.

9 MR. HECKER: Thank you, Madam Speaker.

10 My name's Eric Hecker with Kenna Metals,
11 and I'm speaking on behalf of the NFBA electrical
12 section in opposition to this motion. The
13 electrical section voted to oppose this motion and
14 its business meeting on Monday. Thank.

15 MS. VALENTINE: Thank you.

16 Microphone two.

17 MR. HICKMAN: Thank you. Palmer Hickman
18 representing the International Brotherhood of
19 Electrical Workers speaking in opposition to this
20 motion. This was my public comment. This is an
21 electrical safety issue for electrical workers.
22 When you look at what's required there, two feet, 24
23 inches. that's the egress path that we have to get
24 in to do our work and to get out there, do our work.
25 That's not a lot. We're asking to have

1 clarification here. So I ask you to support code
2 making panel one, the electrical section and
3 electrical work as an electrical safety and voting
4 against this motion. Thank you.

5 MS. VALENTINE: Thank you.

6 Is there any further discussion on motion?
7 70-91 to reject second revision number 7636?

8 Microphone one.

9 MR. HOLUB: Thank you. Richard Holub
10 speaking in favor of the motion. I appreciate that
11 we won 24-inch-wide path and the rule clearly states
12 24-inch-wide path. I don't think we need to specify
13 the 90-degree opening. If the door can be open past
14 that or the door can be removable, there's lots of
15 solutions, but when you put that language in there,
16 the only answer I have now is to move the equipment
17 and it needs to be spaced further apart. That's
18 impossible with existing installations. So I ask
19 you to support this motion. Thank you.

20 MS. VALENTINE: Thank you.

21 Microphone two.

22 MR. HICKMAN: Thank you. Palmer Hickman
23 representing IBW. Again, speaking against the
24 motion.

25 I am a little bit -- I am happy to hear

1 Rich clarify his concerns, and that's exactly what
2 we're looking for. We're looking for the equipment
3 to be spaced further apart. I think Rich also knows
4 that the NEC is not retroactive. You would not have
5 to go back and move equipment that's installed per
6 an existing standard.

7 So whenever the 2026 NEC becomes adopted,
8 we would ask that the equipment be spaced far enough
9 apart where if the doors are open 90 degrees as
10 someone mentioned earlier, a worst-case scenario we
11 would still maintain 24 inches. I don't think I can
12 get through 24 inches, but that's, as they say, the
13 least we can do, all right? So I know when someone
14 says it's the least they can, do trust them. They
15 try to do less but it's not possible. So let's do
16 at least the least we can do, again, for worker of
17 safety. Thank you.

18 MS. VALENTINE: Microphone one.

19 MR. HOLUB: Richard Holub, again, speaking
20 in favor of the motion.

21 Again, if this addressed -- I appreciate
22 that this doesn't apply to existing installations.
23 We don't have to go back and retroactively move
24 equipment, but when we replace that equipment, we
25 now have to comply with the current addition of the

1 code. The only option I have then is to move the
2 equipment, which means make the room bigger. I
3 don't have a magic room stretcher so that means
4 finding new space for equipment, and it
5 significantly changes the scope of the project to
6 replace that equipment. It won't get replaced.

7 So in interest of safety, I think we need
8 to remove this and go back to the 2023 published
9 language and support this motion. Thank you.

10 MS. VALENTINE: Thank you.

11 Microphone two.

12 MR. ODI: Mark Odi and I'm speaking in
13 opposition of the motion. One of the big problems
14 we have with means of egress and that 24-inch
15 requirement that we have is oftentimes the door can
16 open up to 90 degrees, and at times, it can be
17 greater than that. If it just opens to 90 degrees
18 it can trap somebody inside that area. If EMT
19 people have to get in there, they don't have access
20 to it.

21 So I think this again should be left in,
22 and again, I could go something greater than 90
23 degrees. And when you do that, then you open that
24 24 inch area up, but if you have equipment open on
25 one side, equipment open on the other side and you

1 trap somebody in there, they can't get out and
2 nobody can get in to get -- gain access to them in
3 an emergency situation. Thank you.

4 MS. VALENTINE: Thank you.

5 Seeing no one else for discussion, we will
6 move to the vote before we vote -- I'm sorry.

7 Larry, do you have any final comments?

8 MR. AYER: I will defer any further
9 comments to the chair of code making panel one.

10 MR. MCKINNEY: No further comments.

11 MS. VALENTINE: Before we vote, let me
12 restate the motion. The motion on the floor is to
13 reject second revision number 7636. We will raise
14 hands for voting yes. Stand? I'm sorry. We will
15 stand to support the motion and recommend the text
16 that you see on screen one motion.

17 Okay. All right. Thank you. You may
18 sit.

19 To vote against the motion or the text you
20 see on the red screen, please stand.

21 Thank you. The motion fails.

22 We will now proceed with the discussion on
23 certified amending motion, 70-61.

24 Microphone one, please.

25 MR. GILBERT: Thank you. My name is Mark

1 Gilbert. I'm here representing myself, and I am a
2 member of CMP1. I move to reject second revision
3 7626 in any related first revisions or any first
4 correlating revisions. Thank you.

5 MS. VALENTINE: Thank you.

6 There is a motion and a second to reject
7 second revision number 7626 and any related first
8 revisions and first correlating revisions. We will
9 proceed with discussion on the motion.

10 MR. GILBERT: Thank you.

11 MS. VALENTINE: Microphone one.

12 MR. GILBERT: Thank you.

13 During the first draft, FR 9147 attempted
14 to clarify the source marking requirements for other
15 than one and two-family dwellings, and excuse me,
16 and how they applied to one and two-family dwellings
17 and other than one and two-family dwellings.
18 Inadvertently the end result was we excluded one in
19 two family dwellings from the requirement. That was
20 not the intended action to be taken. Supporting
21 this CAM will return the language to what it was in
22 the 2023 code and technically would be the same.
23 Thank you.

24 MS. VALENTINE: Thank you.

25 Larry, would you like to offer the panel's

1 position?

2 MR. AYER: I will defer comment to the
3 chair of code making panel one.

4 MR. MCKINNEY: Thank you, Mr. Chair.

5 Again, Ken McKinney with U.S. Solutions
6 chair of CMP1 and I'd like to speak in support of
7 the motion. As Mr. Hilbert noted in his
8 presentation there and also in his NITMAM, during
9 our first committee meeting we were attempting to
10 clarify the marking requirements for disconnects in
11 111.22 and also comply with the style manual NEC
12 style manual, specifically section 4.13. The
13 revised text now excludes one and two-family
14 dwellings from the marking requirement. This was
15 not our intention, so I would support the motion
16 that is mentioned in the CAM. Thank you.

17 MS. VALENTINE: Thank you.

18 With that we will open debate on the
19 motion. Please provide your name, affiliation, and
20 whether you're speaking in support or against the
21 motion.

22 Microphone three please.

23 MR. HECKER: Yes. Thank you, Madam Chair.

24 Eric Hecker with Kenna Metals speaking on
25 behalf of the NFPA electrical section in support of

1 the motion. The electrical section voted to support
2 this motion at its business meeting on Monday.

3 Thank you.

4 MS. VALENTINE: Thank you.

5 Microphone one.

6 MR. MOORE: Thank you, Ms. Chair.

7 My name is Tom Moore speaking on behalf of
8 the Electrical Inspection section of NFPA and its
9 official representative and speaking for the motion.
10 Electrical Inspection section had its business
11 meeting on Monday of this week, and at that meeting,
12 the section voted to support this motion. Thank
13 you.

14 MS. VALENTINE: Thank you.

15 Microphone three.

16 MR. HICKMAN: Palmer Hickman representing
17 the IBEW, International Brotherhood of Electrical
18 Workers, in support of the motion also on co-making
19 panel one, and I concur that with our chairman to
20 override our action and in support of the motion.
21 Thanks very much.

22 MS. VALENTINE: Thank you.

23 Is there any further discussion on motion
24 70-61 to reject second revision number 7626 in any
25 related first revisions and first correlating

1 revisions.

2 Seeing none, Larry, would you like an
3 opportunity for any final comments?

4 MR. AYER: I'd like to defer any further
5 comments to the chair of code making panel one.

6 MR. MKINNEY: Thank you, Mr. Chair. No
7 further comments.

8 MS. VALENTINE: Thank you.

9 We will now move to the vote. Before we
10 vote, let me restate the motion. The motion on the
11 floor is to reject second revision number 7626 and
12 any related first revisions and first correlating
13 revisions. We will do a standing vote.

14 If you wish to vote in support of the
15 motion and recommend the text that you see on the
16 green titled screen, please stand.

17 Thank you.

18 If you wish to vote against the motion and
19 recommend the text that is on the red titled screen,
20 please stand.

21 The motion passes.

22 Let's proceed with the discussion on
23 certified amending motion, 70-87.

24 Microphone one.

25 MR. WATERS: Thank you, Madam Chair. I'd

1 like to make a motion to accept public comment 1854.

2 MS. VALENTINE: Please state your name.

3 MR. WSTERS: Keith Waters with Snyder
4 Electric.

5 MS. VALENTINE: Thank you.

6 There is a motion and a second to accept
7 public comment number 1854. Please proceed with the
8 discussion on this motion.

9 MR. WATERS: Keith Waters with Snyder
10 Electric speaking in favor of the motion. The vast
11 majority of tripping issues are caused by overloads
12 in short circuits, and we've not seen any branch
13 circuit changes in the calculation load minimum
14 since 1975. There has been a vast increase in the
15 electrical loads even with the energy savings
16 activities that still have the load size of
17 electrical appliances increased along with the
18 number of appliances and vast other electrical
19 utilization equipment.

20 The increase from 3VA per square foot to
21 4VA per square foot to increase the capacity of the
22 branch circuit is necessary in order to be able to
23 meet those requirements. The overload research done
24 indicates that there's a balance between the
25 different rooms within a home and not indicated in

1 one individual location. By changing the
2 calculation, you allow the contractor to make the
3 decision on where those additional branch circuits
4 need to be -- reside.

5 We also have seen surveys conducted by
6 ESFI in multiple states indicating that the branch
7 circuit, short circuit, and overloads are the major
8 cause of service calls in those particular states.
9 And so that load demand is such things such as
10 gaming equipment, remote home office activity, home
11 fitness equipment, durable medical equipment, all of
12 that is what has led to the need of this expansion.

13 So the expansion of electrical loads
14 within the home should be addressed so I ask that
15 this motion be supported by the body. Thank you.

16 MS. VALENTINE: Thank you.

17 Larry, would you like to offer the panel's
18 position?

19 MR. AYER: I'd like to defer to the chair
20 of code making panel two.

21 MR. HUMPHREY: My name's David Humphrey.
22 I represent IAEEI, and the chair of code making
23 panel two. I rise in opposition to the motion on
24 the floor.

25 Code making panel two thoroughly discuss

1 this public comment and its associated public input.
2 Increasing the minimum unit load and likely the
3 minimum number of general purpose branch circuits
4 required in a dwelling unit by the proposed over 30
5 percent as suggested in public comment 1854 was
6 found to be unwarranted, failing to achieve simple
7 majority at both the first and second draft meeting.

8 The tripping event Data referenced in the
9 public comment was noted as overload/short circuit,
10 and these are two different types of tripping
11 events. How many tripping events were associated
12 with just overloads and what were the conditions
13 causing the overloads? That is unknown. Reports of
14 tripping did not differentiate between old and new
15 dwelling units. Older dwelling units wired under
16 earlier editions of the code may be more prone to
17 tripping events.

18 The number of general purpose branch
19 circuits adequately serve their intended purpose at
20 the time. Modern homes have much more efficient
21 electrical equipment and devices, LED lamps, energy
22 star appliances are some examples of those.
23 Reference to the use of medical equipment being a
24 justification for a suggested additional branch
25 circuits are somewhat dubious. A competent

1 electrician could certainly add additional circuitry
2 should a room in a dwelling unit be used to support
3 medical equipment which would deviate from the
4 room's conventional design and use.

5 I ask you to support the work of panel two
6 and oppose the certified amending motion now on the
7 floor. Thank you.

8 MS. VALENTINE: Thank you.

9 With that we will open debate on the
10 motion. Please provide your name, affiliation, and
11 whether you are speaking in support or against the
12 motion.

13 Seeing no one at the microphone -- oh,
14 okay. All right. Take your time. Microphone four
15 please.

16 MR. NESBITT: Okay. I made it. My name
17 is Bryce Nesbitt, obviously Technical Inspections,
18 and there's quite a bit of data available on --

19 MS. VALENTINE: Are you for or against the
20 motion?

21 MR. NESBITT: Oh, that's right. I am
22 against the motion.

23 MS. VALENTINE: Thank you.

24 MR. NESBITT: And in favor of the lower
25 threshold. And the reason that I'm in favor of that

1 is that I'm a member of a working group called
2 Power, which is the panel optimization working
3 group, and we have been working with a considerable
4 amount of data collected by Lawrence Berkeley
5 Laboratories on home usage and found that across the
6 board circuits are well oversized for where they
7 need to be. If there's a trip, that's probably from
8 some defective device, not a pure overload.

9 And I encourage that if this is to be
10 substantiated, that it be done using that available
11 data and I would be happy to hook you up to the
12 people that have that data. Thank you. So I'm
13 opposing the motion.

14 MS. VALENTINE: Thank you.

15 Any further discussion on motion 70-87 to
16 accept public comment number 1854?

17 Larry, would you like an opportunity for
18 any final comments?

19 MR. AYER: I defer any further comment to
20 the chair of code making panel two.

21 MR. HUMPHREY: Substantiation simply
22 doesn't support this CAM. The information's just
23 not there. It's a lot of guesswork and unknown
24 data. I encourage you to oppose the motion on the
25 floor. Thank you.

1 MS. VALENTINE: Thank you.

2 We will now move to a vote. Before we do
3 vote, let me restate the motion. The motion on the
4 floor is to accept public comment number 1854. We
5 will take a standing vote. If you wish to vote in
6 support of the motion or the screen with the green
7 titled text, please stand now.

8 Thank you.

9 If you wish to vote against the motion
10 with the screen that has the red titled text, please
11 stand now.

12 We are going to move to a standing count.
13 Please be seated.

14 Again, if you wish to vote in support of
15 the motion and the text that is on the green titled
16 screen, please stand now. Please make sure that
17 your badges are visible to those who are counting.
18 We need to confirm that you are a voting member.

19 You may be seated.

20 If you wish to vote against the motion and
21 recommend the text on the screen with the red title,
22 please stand now. As a reminder, please make sure
23 your badges are visible to our counters.

24 You may be seated.

25 Voting is closed and the results are 319

1 in support of the motion and 184 against the motion.
2 The motion passes.

3 We will now proceed to the discussion on
4 certified amending motion, 70-107 microphone one

5 MR. COFF: Bill Coff, Coff Associates. I
6 believe it's on record that I'm the duly designated
7 representative of David Bixby representing ACCA.
8 He's representing ACCA, and I move to accept public
9 comment 1817.

10 UNIDENTIFIED PARTICIPANT: Second.

11 MS. VALENTINE: Thank you.

12 There is a motion and a second to accept
13 public comment Number 1817. As we do have a second,
14 please proceed with the discussion on this motion.

15 MR. COFF: Bill Coff, Coff Associates
16 representing Leading Builders of America in support
17 of the motion before you.

18 I have to apologize to those present
19 because I have another technology glitch in that I
20 am getting error messages from NFPA and not able to
21 get into view for some reason and haven't been able
22 to since I came back from lunch. Ao I'll do this on
23 the fly.

24 ACCA submitted a public input. They
25 received feedback from the technical or the code

1 making panel. They responded to that in their
2 public comment and believe that they've addressed
3 the items raised by the committee. Some of the
4 items raised by the panel is there was a concern
5 that this receptacle that would not have GFCI
6 protection could be used for other purposes.

7 Well, I would offer the code already has
8 that. Exception number two allows a dedicated
9 receptacle for premise security systems without even
10 some of the protection that's in the proposed
11 exception number five which says you have to have
12 another receptacle nearby and that this receptacle
13 for the heat condensate pump, I'm sorry, the HVAC
14 condensate pump is dedicated for that purpose.

15 This is the first of several items you're
16 going to hear about GFCI protection. Since the 2020
17 edition of the NEC, there have been numerous well-
18 documented nuisance trips by adding GFCI to circuits
19 that previously did not require them. This is
20 because for energy efficiency purposes we are now
21 introducing into the home equipment that meets
22 energy conservation requirements which is resulting
23 in high frequency motors and they are tripping these
24 GFCIs.

25 So in this instance we had the choice of

1 putting a GFCI on this circuit whereas the industry
2 has yet to document a problem with circuits without
3 GFCI. There's been no risk analysis done to
4 demonstrate a problem, or we put a GFCI on there and
5 we run the risk of it tripping. And in this case, I
6 don't think you want to have in your home an HVAC
7 system with a condensate pump that is not working.
8 In particular, if you are not present, you don't
9 even know that it is tripped.

10 So the risk proposed by not including
11 exception number five is greater than any
12 undocumented risk to date of incorporating the GFCI
13 protection. Thank you.

14 MS. VALENTINE: Thank you

15 Larry, would you like to offer the panel's
16 position?

17 MR. AYER: I'd like to defer comment to
18 the chair of code making panel two.

19 MR. HUMPHREY: I'm David Humphrey. I
20 represent IAEEI, and I'm the chair of panel two. I
21 rise in opposition to the motion.

22 Public comment 1817 was thoroughly
23 discussed by CMP2 at the second draft meeting.
24 Concerns were raised by members of panel two that
25 having a non-GFCI protective receptacle in a

1 conductive location such as near grounded duct work
2 above concrete floors or even worse in the grade
3 level crawl space of a dwelling unit poses a
4 significant safety hazard.

5 Workers or the occupant of the home may
6 not be aware of the significant hazard presented by
7 using a non-ground fault protective receptacle in
8 these areas. Placing a GFCI protected receptacle in
9 the vicinity of a non-protected receptacle will
10 simply encourage the use of the non-protected
11 receptacle if the GFCI performs its intended
12 function and trips due to excessive leakage current.
13 These actions could easily place the user of the
14 non-GFCI protective receptacle in jeopardy of
15 electrical shock injury or even electrocution.

16 Public comment 817 failed to achieve
17 majority vote at the second draft meeting. One
18 thing that was mentioned in the earlier statement,
19 and we're talking about what if the sump pump
20 doesn't work or what if, excuse me, the condensation
21 pump doesn't work. Well, that might be a problem
22 inside somewhere, but how about in the crawl space
23 of a home? That could be lethal results when the
24 electrician or the worker plugs in and it trips
25 because it's doing its intended function. Hey, this

1 one over here doesn't trip use it. That guy may not
2 go home that night.

3 So I encourage you to support the work of
4 CMP2 and oppose the certified amending motion on the
5 floor.

6 MS. VALENTINE: With that, we will open
7 debate on the motion. Please provide your name,
8 affiliation, and whether you are speaking in support
9 or against the motion.

10 Microphone one please.

11 MR. BUCH: Thank you. My name is Dan Buch
12 (phonetic) with the National Association of Home
13 Builders, and the topic of safety was just brought
14 up. It's important to note that there are hazards
15 to occupant health that can occur if there is
16 tripping, that would be due to exposure to extreme
17 heat or cold. It's also important to understand
18 that the tripping would defeat the new flammability
19 safety feature by interfering with the control
20 systems which need blowers to operate in response to
21 increasing A2L -- that's low flammability
22 refrigerant concentrations -- to prevent those A2L
23 refrigerants concentrating in the room.

24 Now this is nothing new, this type of
25 exception. The proposed language is based on the

1 state of Oregon's broader exception allowing for non
2 GFCI receptacles for dedicated equipment when so
3 labeled. At least five states have amendments in
4 the NEC to include GFCI exemptions for sewer, sump,
5 and/or condensate pumps. Please support the motion.

6 MS. VALENTINE: Thank you.

7 Microphone two.

8 MR. JACKSON: Thank you, chairman.

9 My name's Ryan Jackson speaking on behalf
10 of myself and in opposition to the motion. I wish
11 you address a couple of statements that were just
12 made, and I want to rebut them. One of the first
13 things that was mentioned was the fact, and it is a
14 fact, that we have an exception for a single
15 receptacle for a security alarm. But to state that
16 that's equivalent to adding this new exception is
17 just factually incorrect.

18 If a condensate fails and the GFCI trips
19 the condensate fails, you will indeed have water on
20 the floor, energized water at that. And there have
21 been documented deaths, not from condensate pumps,
22 from sump pumps to where the occupant entered a
23 floor where water was on the floor. The water was
24 energized, and in the state of Maryland, it killed a
25 young mother and her babe in arms. So there are

1 documented deaths from similar occurrences like
2 this.

3 Now I'm well aware of the alleged unwanted
4 tripping issues, and I understand there are unwanted
5 tripping. I serve on UL 943 for GFCIs. I'm aware
6 of them. We are working on it. It will be
7 addressed in the very near future. So there are
8 unwanted tripping concerns, I think they're somewhat
9 unwarranted because they will be alleviated in the
10 very near future, and it doesn't alleviate the real
11 danger. Thank you.

12 MS. VALENTINE: Thank you.

13 Microphone four.

14 MR. WATERS: Yes, my name is Keith Waters,
15 and I speak in opposition to the CAM on the floor.
16 Earlier we were talking about crawl spaces, so just
17 to provide a little historical space. GFCI
18 protected receptacles have been required in crawl
19 spaces since the 1990 version of the National
20 Electric Code. So this is not something that's just
21 been adopted or posted or created. This GFCI
22 requirement has a long history in potentially
23 protecting people and saving lives.

24 Personally, I also have a dual function
25 breaker that feeds my condensate pumps, and so

1 without issue, I have not had a problem. So thank
2 you.

3 MS. VALENTINE: Thank you.

4 Microphone one.

5 MR. COFF: Bill Coff, Coff Associates in
6 support of the motion in representing Leading
7 Builders of America. I think the opponents have
8 somewhat made my case. They documented that there
9 is what it was referred to as alleged nuisance
10 stripping. That's well documented.

11 What is not documented are the alleged
12 injuries that have occurred. The example you were
13 giving us from a sum pump. The original ACUS
14 submission had some pumps in it. They dropped that
15 in response to that feedback. So you've also heard
16 that many states are amending NFPA 70 when they
17 adopt it to take it out because of the problem.

18 So the bottom line is who do we want to
19 have make this decision? A technical group or a
20 political group? And right now, we are turning this
21 over to political folks to make a decision as to
22 whether to include this or not as compared to making
23 the right technical decision.

24 As to whether this was required in the
25 past or not, and that's going to be different than

1 our next item because that was a new requirement,
2 the difference is the high frequency equipment that
3 we have to install today to meet energy efficiency
4 requirements. And you heard that they're working on
5 it. We've heard that for six years now, folks, and
6 they are not yet there. When this document starts
7 to get adopted later this year, is there a guarantee
8 that that will be finalized during that time period?
9 We've been waiting for six years. I don't think
10 we're there. Thank you.

11 MS. VALENTINE: Thank you.

12 Microphone two.

13 MR. DEMITROVICH: Thank you. Thomas de
14 Mitrovich with Eden. I am a code making panel two
15 member, but I'm speaking on behalf of Eden and
16 myself. I rise in opposition to the motion on the
17 floor.

18 Panel two had a lengthy debate on this
19 discussion and we had evidence or we had the
20 suggestions of incompatibility. The challenge that
21 we have is all too often, we point our finger at the
22 object or subject that is causing discomfort or not
23 reacting the way we wanted it to react, and GFCIs
24 will do that in some cases. But not in all cases is
25 it a compatibility concern because they are doing

1 the function that they are designed to do. So we
2 have to be very careful, and panel two did look at
3 that data. I know I looked at that information, and
4 evidence wasn't there as to the cause or reason of
5 the trip.

6 We hear instances of trips, but you never
7 get the evidence and the dialogue and dissertation
8 of regard to the investigation that occurred on
9 exactly why the trip occurred. So it's easy to
10 point the finger. It's much more difficult to
11 validate your claim. Code panel two has introduced
12 the permission to use an HF-type GFCI, which is a
13 direct response to the request that we have seen
14 continuously with regard to compatibility concerns.
15 We're bringing technology to the marketplace. We
16 are making changes to standards in response to the
17 industry's desire for compatibility.

18 I urge you to not support this certified
19 amending motion for the sake of safety. Thank you.

20 MS. VALENTINE: Thank you.

21 Microphone three, please

22 MR. ODI: Mark Odi, again, in support of
23 the motion. Southwestern and the southern part of
24 the country, these things when we have air
25 conditioning units, are going to get condensation.

1 And if there's a condensation pump and that pump is
2 not operational for one reason or another, whether
3 it be GFCI receptacle or circuit breaker that trips
4 out, we're going to have a lot of damage to the
5 house simply -- or the building simply because of
6 the overflow that's going to occur. When the
7 condensation pump doesn't work, that condensation is
8 going to accumulate to the point where it overflows,
9 and that's going to be a real problem.

10 So again, when you look at these kinds of
11 things, you're not going to have that in places
12 that's very, very cold. You're going to have that
13 in places very hot and very humid, and that
14 condensation pump needs to work. Putting GFCI
15 protection on that to me again in most cases, you're
16 not going to necessarily have it on the floor until
17 after it roots the drywall and the other types of
18 building material until it gets to the floor.

19 I don't think we have an electrocution
20 hazard here as much as we have a problem with
21 condensation, overflowing and ruination of the
22 building and the amount of costs it's going to take
23 to repair that. Thank you.

24 MS. VALENTINE: Thank you.

25 Microphone four please.

1 MR. WATERS: Thank you, Madam Chair.
2 My name is Keith Waters with Snyder
3 Electric, and I rise in opposition to the motion on
4 the floor. I'm going to read directly from
5 condensate manufacturer instructions warning, "Risk
6 of severe injury or death by electrical shock, item
7 three, be certain that this pump is connected to a
8 circuit equipped with a ground fault circuit
9 interrupting device." Thank you.

10 MS. VALENTINE: Thank you.

11 Microphone three.

12 MR. NESBITT: Hello, this is Bryce
13 Nesbitt, obviously Technical Inspections, speaking
14 in favor of this CAM. I'm a field inspector so I go
15 out to all sorts of buildings, and I see all sorts
16 of failures, not just the electrical ones. I see
17 the moldy drywall. I talk to tenants who have a
18 problem with mold that goes on for years. I see
19 equipment that's not manufactured.

20 You are essentially weighing two hazards.
21 One is an electrical hazard when someone is
22 repairing or working on equipment, and the other is
23 the hazard to the people who live in the building.
24 And that's really difficult to do, and I can't tell
25 you how to do that, but I know that if you only

1 think about the electrical hazard of the person
2 working on the equipment, you might come to the
3 wrong conclusion. And you won't have the data
4 because you don't know how many people are sick, how
5 many people are affected by mold, what those effects
6 are. So I urge you to weigh wisely, and I am
7 supporting this CAM. Thank you.

8 MS. VALENTINE: Thank you.

9 Microphone one, please.

10 MR. COFF: Bill Coff, Coff Associates
11 representing Leading Builders of America. Two very
12 quick comments. Again, what you've heard is we're
13 working on a solution. We don't have it. The
14 industry themselves have admitted they have not yet
15 solved this problem. If they can solve the problem,
16 I can't speak from ACCA's perspective, but from
17 leading builders of America, we will support a TIA
18 to address it. But in the meantime, you're putting,
19 as was previously indicated, a known risk into a
20 building for a alleged or perceived risk. Basic
21 electrical safety, de-energize the equipment before
22 you're going to work on it. Thank you.

23 MS. VALENTINE: Thank you.

24 Microphone three please.

25 MR. WHISTLER: Yes, name Wendell Whistler,

1 and I'm representing myself. I would like to point
2 out that the gentleman over there that talking about
3 the condensate pump --

4 MS. VALENTINE: Excuse me, for or against
5 the motion?

6 MR. WHISTLER: I am against the -- in the
7 red. Oh, I got to move up.

8 MS. VALENTINE: Please continue.

9 MR. WHISTLER: I'm sorry. I oppose the
10 motion.

11 MS. VALENTINE: Thank you.

12 MR. WHISTLER: If the manufacturers are
13 building their products to the listing standards and
14 complying with the listing standards, then they're
15 the ones that have the problem with the high
16 frequency, not the GFCI. Because that standard says
17 at the end of the day, right across the top of it,
18 must comply with their most current requirements to
19 the NEC.

20 So asking for somebody to take something
21 out and use and remove something such as the GFCI
22 because their product doesn't function properly with
23 a known device that's required seems to me rather
24 interesting because the gentleman that keeps talking
25 about this says they've had six years. Yeah, the

1 manufacturers have had six years to fix the problem,
2 and they haven't done a darn thing about it and they
3 just keep coming back. Same thing's going to come
4 up in another one here from them asking for the same
5 kind of quarter to change something again because
6 they're not fixing the problems that their design
7 has. So I would oppose that motion. Thank you.

8 MS. VALENTINE: Thank you.

9 Is there any further discussion on motion
10 70-107 to accept public comment number 1817?

11 We will now move to a vote. Before we
12 vote, let me restate the motion. The motion on the
13 floor is to accept public comment number 1817. We
14 will take a standing vote.

15 If you wish to support the motion, please
16 stand. This would be the text on the green titled
17 screen.

18 Thank you.

19 If you wish to vote against the motion and
20 recommend the text on the red titled screen, please
21 stand.

22 Thank you.

23 The motion fails.

24 Let's now proceed with the discussion on
25 grouped certified amending motion 70-130 and 70-160.

1 Microphone one please.

2 MR. DEARIE: Hello, my name's Tom Dearie
3 from the Air Conditioning Heating and Refrigeration
4 Institute. I would like to make certified amending
5 motion 70-130 to accept committee comment 7584.

6 MS. VALENTINE: Thank you.

7 There is a motion and a second to accept
8 committee comment number 7584. Please proceed with
9 the discussion on this motion.

10 MR. DEARIE: Thank you.

11 HVAC manufacturers remain strongly
12 concerned that the exemption from the GFCI
13 protection requirements of 210.8F must be extended
14 from 2026 until 2029. The extension is necessary to
15 resolve the nuisance tripping issues that we've been
16 discussing previously. And to be clear, AHRI is not
17 opposed to GFCI protection being required in this
18 capacity after sufficient time has been allowed for
19 this transition to proceed successfully.

20 However, the issue of nuisance tripping
21 remains a problem for the majority of manufacturers,
22 and it will be a burden for homeowners and tenants.
23 2029 has consistently been the recommended
24 compliance date from the HVAC industry dating back
25 to the previous code cycle. AHRI is not seeking to

1 postpone this state indefinitely. Were merely being
2 consistent. This timeline is necessary because of
3 widespread incompatibility issues that have not been
4 able to be resolved due to new and emerging GFCI
5 products that are not widely available or are cost
6 prohibitive.

7 When manufacturers include GFCI integral
8 to their products, the identification and
9 certification of these products will take time.

10 There were numerous public inputs and public
11 comments that were received raising concerns with
12 the timeline of the requirements in 210.8F.

13 In response to William Coff's public
14 comment number 3619, which proposed extending the
15 exemption date beyond 2026, CMP2's entire committee
16 response was simply, quote, CMP2 reaffirms the
17 expiration date of September 1, 2026, to help drive
18 urgency in resolving the problem of incompatibility,
19 end quote.

20 Driving urgency alone does not constitute
21 technical justification for rejection, particularly
22 in the face of documented compatibility issues.
23 Furthermore, as previously stated, the standard for
24 GFCI UL 943 is in the middle of an update that is
25 directly applicable to this transition. It is not

1 expected to reach its effective date for several
2 years.

3 Additionally, AHRI has been conducting a
4 research project, AHRI 8029 in conjunction with EPRI
5 to investigate GFCI nuisance tripping. Testing is
6 expected to continue through late 2025, and the
7 final results will not be available in time for this
8 2026 timeframe.

9 A majority of the HVAC industry has not
10 been able to develop products compatible to the
11 available GFCI. Nuisance tripping is going to be a
12 problem if this exemption is allowed to elapse in
13 2026. The HVAC industry is diligently working to
14 solve this problem. For testing to be completed and
15 the appropriate product safety standards to be
16 updated, ample time must be allowed. I ask you to
17 support this motion. Thank you.

18 MS. VALENTINE: Thank you.

19 Larry, would you like to offer the panel's
20 position?

21 MR. AYER: I'd like to defer comment to
22 the chair of code making panel two.

23 MR. HUMPHREY: I'm David Humphrey. I
24 represent IAE. I am the chair of panel two, and I
25 rise in opposition to the motion on the floor.

1 CMP2 has engaged in abundant discussion
2 regarding 210.8F exception to and the 2026
3 expiration date that public comment 1820 seeks to
4 extend. However, at ballot, the public comment
5 failed to achieve two thirds of the vote. It did
6 receive a simple majority at the second revision.
7 11 to 9 were the ballot votes. Concerns among those
8 supporting the timeframe extension of the exception
9 to 2029 is that a hazard may exist if a flammable
10 mixture in air and refrigerants were to occur due to
11 sudden power loss by a GFCI device tripping.

12 Additional concern is more time is needed
13 to address compatibility issues. Concerns of those
14 voting in the negative are that power loss occurs
15 for many reasons with no documentation -- documented
16 cases of an incident at HVAC equipment occurring due
17 to sudden power loss resulting in a flammable
18 mixture of air and refrigerants.

19
20 Additionally, it was noted by those in
21 opposition to the dates extension that UL 943 has
22 developed standards but GFCI, high frequency and
23 high frequency plus devices, and these devices may
24 now be used for HVAC outlets required by 210.8 F.
25 These high frequency and high frequency plus devices

1 operated other than 60 hertz. Appliances operating
2 at higher frequencies than 60 hertz to meet energy
3 standards have been identified as an underlying
4 problem with unwanted tripping of standard class a
5 GFCI devices.

6 I ask you to support the work of code
7 making panel two and oppose the certified amending
8 motion now on the floor.

9 MS. VALENTINE: Thank you.

10 With that we will open debate on the
11 motion. Please provide your name, affiliation, and
12 whether you are speaking in support or against the
13 motion.

14 Microphone three please.

15 MR. SPRIG: Hello, my name is Eric Sprig
16 representing Mitsubishi Electric, and I'm in support
17 of this motion. So just for a little background,
18 Mitsubishi Electric is a manufacturer of high
19 efficiency AC and air conditioning and heat pump
20 systems that utilize variable speed fan motors and
21 compressive motors.

22 Sorry, this is my first time presenting.

23 So regarding the class A HF and HF-plus
24 GFCIs, those are not actually in the code yet.
25 There are some out for ballot and recirculation

1 items that are out, but for now, UL 943 is not
2 allowing those. You cannot as a manufacturer
3 classify GFCI as HF or HF plus until the code UL 943
4 gets updated.

5 So until that's the case in manufacturer
6 cannot technically classify a GFCI as HF or HF plus,
7 and I think it's expected that as we all know, maybe
8 a year and a half to finalize a code and then in
9 order to get that actually presented to the public
10 as a code, another -- it could be as much as three
11 to six years, which actually aligns with the 2029
12 date that we've been requesting since the start.

13 Just to touch on SP GFCIs, Mitsubishi
14 Electric does see the need for these devices on
15 larger residential HVAC systems and multis split
16 systems configurations where there can be up to 12
17 indoor units connected and powered by the outdoor
18 unit directly. Some manufacturers are developing
19 reasonably priced SP GFCI options, but these types
20 of devices are still under the development, and it's
21 unclear whether there'll be available in amounts and
22 through enough channels for the industry to take
23 advantage of as a whole.

24 Finally, the modifications that HVAC and
25 appliance manufacturers must make to ensure

1 compatibility with GFCIs take significant amount of
2 time and effort.

3 So in closing, we're not advocating for an
4 indefinite extension. We're only requesting a
5 single cold cycle delay for mandatory adoption to
6 ensure that all stakeholders and solutions are
7 available to mitigate compatibility issues that may
8 be encountered. Thank you.

9 MS. VALENTINE: Thank you.

10 Microphone four please.

11 MR. HUGHES: I would love to hear what
12 these gentlemen have to say before I speak. Is that
13 acceptable?

14 MS. VALENTINE: Okay. Okay. We'll start
15 with microphone one.

16 MR. COFF: Bill Coff, Coff Associates
17 representing Leading Builders of America. Yeah
18 John, I'd like to hear what you say too, but I'll go
19 ahead and accept that invitation.

20 So a couple things. First off, there is a
21 potential conflict in the NEC if this motion fails,
22 and that conflict is that we're going to treat HVAC
23 appliances different than HVAC equipment. Because
24 in 422, that code making panel said we're going to
25 put off the HF requirement until 2029 because it's

1 not yet available. It still needs to be developed.

2 The chair admitted the code making panel
3 two, a majority of the code making panel supported
4 this public comment. And if you look at the
5 opposition, there were two reasons that people
6 opposed it. Yes, a lot of them opposed it because
7 they didn't want the extension, but there were also
8 opposition based upon the special purpose GFCI
9 requirements saying we don't know that it's going to
10 work. There's no testing that was submitted to code
11 making panel too to show that the special purpose
12 GFCI would even function.

13 I just want to go back to our previous --
14 not go back to our previous item, but based upon the
15 testimony on the previous item. This is different
16 in that this was a new requirement in the 2000
17 edition of the NEC. After I don't know how many
18 attempts to get a TIA through the council, the
19 council eventually appointed a task group to work on
20 that. That task group, as you've previously heard,
21 that task group recognized that we were probably at
22 that time seven, eight years away from a solution to
23 this. Despite that, the task group to get a
24 consensus, agreed to an extension. 2023 edition
25 code making panel two refused to extend it, and TIA

1 extended it.

2 So we keep getting back to the point that
3 this is not yet developed, and again, this is
4 different than the previous one because this was a
5 new requirement that was put in that created the
6 problem. The new requirement was the GFCI on these
7 circuits, and again, the manufacturers of these
8 products don't have a choice. They have to meet
9 energy conservation requirements.

10 So we need to look at a way to do it
11 safely. The industry has yet to identify a problem
12 with this equipment on non GFCI protected circuits.
13 Thank you.

14 MS. VALENTINE: Thank you.

15 Microphone four please.

16 MR. HUGHES: Well, this'll be my first
17 time debating against Bill, so it ought to be fun.

18 I'm John Hughes, chief engineer for
19 residential controls at Trane Technologies. We
20 oppose this motion. We believe GFCIs could save the
21 lives of our service technicians, residents, or
22 anyone else who contacts live electrical components
23 of a heat pump or air conditioner.

24 Therefore, Trane Technologies has
25 partnered with the GFCI manufacturer to develop a

1 new class A GFCI that is compatible with our heat
2 pumps and air conditioners. This GFCI will be
3 available through our Trane and American Standard
4 distributors very soon. Very soon. And we have the
5 technology to save lives now. We should not put it
6 off for three more years.

7 MS. VALENTINE: Thank you.

8 Microphones three please.

9 MR. POTTER: Thank you.

10 Jonathan Potter speaking in support of the
11 motion. I am representing LaGrand Pass Seymour
12 (phonetic). So with respect to the three-year
13 extension here, this is really about giving the
14 industry just a little bit more time to finish the
15 work being done on UL 943 for HF GFCI protection.
16 I've been very heavily involved in this, and I do
17 see it progressing.

18 Some of the comments made earlier today
19 about it moving slowly are definitely true, but we
20 are now seeing momentum and it is now starting to
21 move. Moving this requirement to 2029 really should
22 align very well with what we should see as many
23 manufacturers having HF products out on the market.
24 Thank you.

25 MS. VALENTINE: Thank you.

1 Microphone four please.

2 MR. HUMPHREY: Thank you. I'm David
3 Humphrey, and I'm speaking for myself. I rise in
4 opposition to the motion on the floor. You've heard
5 some information given. One that we simply need an
6 extension to get it done. A one-time extension.
7 Well, this is the third time they're asking for a
8 one-time extension, so nine years is a long time.

9 We should also note we've heard that more
10 time is need to develop the product. UL 943 has
11 been completed. It is in publication which deals
12 with high frequency breakers. The work is completed
13 in that regard, and the 2026 NEC contains language
14 allowing the use of high frequency and high
15 frequency plus breakers.

16 So guys, we're there. There's a method to
17 comply. There's a method to achieve safety. I
18 encourage you to oppose this certified amending
19 motion.

20 MS. VALENTINE: Thank you.

21 Microphone one please.

22 MR. TARIN: Thank you. My name is Dominic
23 Tarin (phonetic) representing Carrier, and I speak
24 in favor of a motion. I agree with everything
25 expressed by the previous speakers who supported the

1 motion. I would add that maintaining a September 1,
2 2026, deadline in a code that will be published at
3 the end of 2025, only nine months before, is to say
4 the least strange and confusing.

5 During the previous cycle, the 2023
6 edition of a NEC, only four states had implemented
7 the 2023 edition by September 2023. So nine months
8 after publication. And yet one of these four states
9 had passed an amendment deleting section 210.8F
10 entirely.

11 It is reasonable to assume that the same
12 will be true for this new 2026 edition of the NEC.
13 This means that more than 90 percent of the states
14 will adopt the code after the GFCI exception
15 expires. But as previous speakers have stated, not
16 all problems will be resolved by September 2026.
17 The task force has not completed the work.

18 States and local jurisdiction will
19 therefore have to vote again on amendments to
20 section 210.8F, and we will be in the same situation
21 as we were three years ago and even six years ago.
22 In fact, the problems may even be amplified by the
23 trend towards electrification -- I mean the
24 replacement of gas boilers with electric heat pumps.

25 We said safety doesn't happen by chance.

1 I respectfully urge members to give a chance to the
2 HVAC industry to continue their collaboration with
3 GFCI manufacturers in order to better understand the
4 issue and work together to find a safe, reliable,
5 and sustainable solution. Thank you for your time,
6 and I respectfully urge you to support this motion
7 extending the exception deadline. Thank you.

8 MS. VALENTINE: Thank you.

9 Microphone four please.

10 MR. WATERS: Yes, my name is Keith Waters
11 with Snyder Electric, and I stand in opposition to
12 the motion. So just a quick understanding of what
13 the impact is going to be for another three years.
14 Okay. We have five to six people per year
15 electrocuted unrelated to residential HVAC systems,
16 and that's documented through the CPSC. So three
17 years, five or six people a year, that's what we're
18 doing with that by further delay. Thank you.

19 MS. VALENTINE: Thank you.

20 Microphone three please.

21 MR. HERSCHER: Marcel Herscher, GBH
22 International and I call the question.

23 UNIDENTIFIED PARTICIPANT: Second.

24 MS. VALENTINE: There is a motion from the
25 floor to call the question. There are a number of

1 people remaining at the microphones waiting to
2 speak, but we will proceed with the vote on the call
3 of the question. I did hear a second.

4 If you wish to vote in support of the
5 motion, please stand. Again, this is the motion to
6 call the question.

7 Thank you.

8 If you wish to vote against the motion,
9 please stand.

10 Thank you.

11 The vote is closed, and it does pass. So
12 we will move directly to the vote on motion 70-130
13 and 70-160. Before we vote, I will restate the
14 motion. It is to accept committee comment number
15 7584. We will take a standing vote.

16 If you wish to vote in support of the
17 motion, please stand now. This is the green titled
18 slide in favor of the text.

19 Thank you.

20 If you wish to vote against the motion,
21 please stand now. This would be in parallel with
22 the red text titled slide.

23 Thank you.

24 The vote has failed.

25 We will proceed with discussion on group

1 certified amending motion. 70-83, 70-89.

2 Microphone three.

3 MR. DOLLAR: I'd like to make a motion to
4 support CAM 70-83 which is to accept committee
5 comment 7738.

6 MS. VALENTINE: Please state your name for
7 the record.

8 MR. DOLLAR: My name is Randy Dollar. I
9 am with Siemens, and I'm representing ACBMA, which
10 is American Circuit Breaker Manufacturers
11 Association.

12 MS. VALENTINE: Thank you. There is a
13 motion on the floor to accept committee comment
14 number 7738 And there is a second. Please proceed
15 with the discussion on this motion.

16 MR. DOLLAR: Excuse me. That was 7783.

17 MS. VALENTINE: It's to accept committee
18 comment 7738.

19 MR. DOLLAR: Oh, sorry. Seven. Sorry.
20 Sorry. You're correct.

21 MS. VALENTINE: Please proceed.

22 MR. DOLLAR: So again, Randy Dollar with
23 Siemens speaking on behalf of American Circuit
24 Breaker Manufacturers Association or ACBMA. I'm
25 speaking in support of CAM 70-83. As code making

1 panel two included in their committee statement,
2 bathrooms have been included for several cycles in
3 dormitories. The circuits are the same as other
4 lighting outlets in the dwelling. There has been
5 significant AFCI testing done using the major
6 manufacturers of bathroom fans, including humidity
7 level testing in order to prevent unwanted tripping.
8 This testing covers over 100,000 test cases, over
9 1,000 use cases, and over 300 appliance brands.

10 The Commonwealth of Massachusetts has
11 required AFCI protection on all circuits since their
12 adoption in the 2020 NEC with the amendment on
13 January 1, 2020. ESFI conducted a survey of
14 electrical contractors in Massachusetts during 2022
15 and found there were no substantiated issues related
16 to AFCI technology.

17 Arcing on an AFCI protected circuit has
18 not been documented as a source of an electrical
19 fire, and AFCI protection is more about the journey
20 of the conductor than the room that is served by the
21 branch circuit. Thank you. And I ask for your
22 support to support motion 70-83.

23 MS. VALENTINE: Thank you.

24 Larry, would you like to offer the panel's
25 position?

1 MR. AYER: I'd like to defer comment to
2 the chair of code making panel two.

3 MR. HUMPHREY: I'm David Humphrey. I
4 represent IAEI and chair of code making panel two.
5 I rise in opposition to the motion.

6 The submitted public comment proposed to
7 require AFCI protection for branch circuits serving
8 lighting outlets in dwelling units' bathrooms. The
9 proposed expansion of the requirements of section
10 210.12 B to include branch circuit serving bathroom
11 lighting outlets did receive robust debate at the
12 second draft meeting. The public comment achieved
13 simple majority of the floor vote. The subsequent
14 ballot failed to receive the requisite two thirds
15 votes in support of the public comment with the
16 tally of 12 in support, eight in opposition.

17 The primary focus of the second draft
18 floor deliberations by those in opposition to the
19 expansion of AFCI protection was a reluctance to
20 expand AFCI requirements due to reports of unwanted
21 tripping. A primary focus of those in support of
22 such expansion was that cable supplying lighting
23 outlets in bathrooms are subject to the same degree
24 of hazard as may be found elsewhere in the dwelling.
25 I ask you to support the work of code making panel

1 two and oppose the certified amending motion now on
2 the floor. Thank you.

3 MS. VALENTINE: Thank you.

4 With that, we will open debate on the
5 motion. Please provide your name, affiliation, and
6 whether you are speaking in support or against the
7 motion.

8 Microphone two, please.

9 MR. LICHENSKI: Greg Lichenski (phonetic)
10 from AHAM, Association of Home Appliance
11 Manufacturers speaking against the motion. AFCIs
12 struggle with nuisance tripping in a university
13 study, not a study conducted by circuit breaker
14 manufacturers. 93.9 percent of residential
15 electrician's report nuisance tripping from AFCIs.

16 Furthermore, 87 percent of residential
17 electricians are aware of instances where an AFCI
18 breaker is replaced by a standard circuit breaker to
19 resolve nuisance tripping. While this motion may
20 expand purchases of AFCIs, it may not result in
21 long-term installation of AFCIs. The root cause of
22 nuisance tripping is out of date UL requirements
23 including AFCI requirements in UL 1699.

24 Two areas of update are desperately
25 needed. The first is loads that are tested with an

1 AFCI. Currently, the UL standard requires an AFCI
2 to be tested with out-of-date loads like
3 incandescent light bulbs. The standard does not
4 mandate third party testing with commonplace modern
5 loads like LEDs and variable frequency motors.

6 Also, a single AFCI is exposed to signals
7 from other circuits on the panel board. This is
8 called crosstalk. The UL 1699 standard evaluates
9 this, but again, the evaluation is not
10 representative of modern electrical loads. This gap
11 allows an AFCI on one circuit, for example, in the
12 bathroom, to trip due to safe operation of modern
13 loads on other circuits of the same panel board.
14 This has been documented by AFCI manufacturers,
15 utilities and appliance manufacturers presented at
16 meetings in January.

17 To make sure product specific safety
18 issues are handled properly, we rely on UL product
19 standards third party testing and listing, not
20 manufacturer in-house testing. The UL standard that
21 covers AFCIs is long due for an update. Nobody
22 would or could use an AFCI without a laboratory
23 mark, but as time goes on, that listing mark becomes
24 less and less meaningful without updates to the
25 standard.

1 In concept, AHAM is not against AFCIs.
2 Devices that can repeatably distinguish between a
3 safe condition and an unsafe condition are a good
4 thing. However, more work is needed to reach that
5 point. Please vote against AFCI expansion within
6 the NEC. Thank you.

7 MS. VALENTINE: Thank you.

8 Microphone one please.

9 MR. WATERS: Thank you. My name is Keith
10 Waters. I'm with Snyder Electric and rise in
11 support of the motion.

12 Code panel two's committee statement on
13 this particular motion stated, "Technical
14 substantiation has been provided to support addition
15 of bathroom lighting outlets to be included in the
16 list of areas with AFCI protection." As indicated
17 by the chair, the second revision failed ballot by
18 one vote.

19 One of the things that we talk about when
20 we hear about interoperability or unwanted tripping,
21 there's some things that we also need to realize.
22 Appliances of any type have been on branch circuits
23 protected by AFCI since 2014. The calculation and
24 published numbers show interoperability concerns on
25 appliances ignores the fact that over 60 million

1 appliances are currently fed from those AFCI branch
2 circuits.

3 So if this was a major problem, I think 60
4 million of those appliances would've created more
5 issues. So thank you.

6 MS. VALENTINE: Thank you.

7 Microphone four, please.

8 MR. BUCH: Thank you.

9 My name is Dan B representing the National
10 Association of Home Builders. I'm also a member of
11 Panel two, and I'm speaking in opposition to the
12 motion.

13 It's not so much an issue of nuisance
14 tripping. National fire data does not support the
15 continued expansion of AFCIs. Tens of millions of
16 AFCI devices have been installed, and we are still
17 seeing upticks in electrical fires based on the data
18 that NFPA collects. This is very different from the
19 clear reduction in electrocutions that were recorded
20 when GFCIs were introduced. We should expect to see
21 a similar correlation.

22 The annual number of electrical fires
23 nearly doubled in the years after the largest
24 expansion of AFCI requirements in the code between
25 2010 and 2014. The whole point of requiring AFCIs

1 is to reduce the number of electrical fires in the
2 U.S., and the panel has been on a path of expansion
3 since their initial inclusion in the code without
4 stopping to consider whether AFCIs are meeting their
5 intended goal. The data seems to show they are not.
6 Please vote no on this motion. It does not advance
7 electrical safety as shown by the national fire
8 data.

9 MS. VALENTINE: Thank you.

10 Microphone three please.

11 MR. DEMITROVICH: Thank you.

12 Thomas de Mitrovich with Eden speaking in
13 support of the motion on the table on the floor.

14 I want to remind everybody this is
15 bathroom lighting outlets. I know we've had
16 discussions about appliances. We've had discussions
17 about bearable frequency drives. We're talking here
18 about bathroom lighting outlets.

19 And I want to remind people of two things.
20 One, it's not about the room. AFCI protection uses
21 rooms like GFCI does with receptacles. It helps
22 installers, it helps designers to identify which
23 circuits demand AFCI protection. It's not about a
24 problem in that room. It's about the journey of
25 that conductor from the panel board to that room.

1 That conductor has many opportunities to be damaged
2 due to screws, nails, and mice and everything else
3 that have been recognized as causing damage to the
4 wiring in a structure. So it's not about the room.
5 It's not about the bathroom. It's about the journey
6 of that conductor.

7 And second, I love -- I don't love it --
8 people always will use fire statistics in relation
9 to AFCIs not performing. The fact that we have fire
10 statistics in residential dwelling units tells me we
11 don't have enough AFCI protected circuits in our
12 markets, in our states, in all of these dwelling
13 units. We have a lot of dwelling units that are
14 going into today with many unprotected conductors
15 that will be future fire statistics. AFCI
16 protection is needed on our circuits as evidenced by
17 the fire statistics.

18 So please, I urge you to support the
19 certified amending motion that's on the table today.
20 Thank you.

21 MS. VALENTINE: Thank you.

22 Microphone two please.

23 MR. POTTER: Jonathan Potter, LaGrand,
24 Pass, and Seymour speaking in opposition to the
25 motion.

1 Just referring to some unintended
2 consequences. it is very likely that although the
3 bathroom lighting circuit is the only addition,
4 proposed that the receptacles in a bathroom on many
5 of these in the future would also be protected by
6 combination AFCI, GFCI device, therefore protecting,
7 providing the necessary protection for GFCI in a
8 bathroom. If nuisance tripping was to persist as
9 referenced by Mr. Lichenski and the breaker was
10 replaced with a standard breaker, the unintended
11 consequence resulting in the loss of GFCI protection
12 in the bathroom would then ensue. This would then
13 result in unprotected receptacles in a bathroom from
14 A GFCI perspective. Thank you.

15 MS. VALENTINE: Thank you.

16 Microphone three, please.

17 MR. DOLLAR: Yes, so Randy Dollar, and I'm
18 actually speaking on behalf of Siemens, not ACBMA at
19 this time. So I'm speaking in favor of the motion.

20 MS. VALENTINE: Thank you.

21 MR. DOLLAR: I want to address the aspect
22 that was just mentioned there that it may wind up
23 with unintentional use on the receptacle. If
24 nuisance trip was really the problem that some
25 people have tried to portray it to be, then I'm sure

1 no electrician would actually put it on the
2 receptacle circuit. So it would be limited to the
3 lighting circuits if that were a real issue.

4 I also want to address the aspect of the
5 fire statistics. If you actually look at the USFA
6 data and you look at the NFPA analysis of the USFA
7 data, you'll see a downward trend if you put a trend
8 line on that. One of the other gentlemen that spoke
9 earlier mentioned a four-year window that showed an
10 upward trend.

11 You can take GFCI and show a four-year
12 window of an upward trend of electrocutions, but I
13 don't think anybody in the room would believe that
14 GFCIs didn't prevent electrocutions. So I think we
15 need to look at the long-term data. We see a
16 downward trend in fires. We see a significant
17 upward trend in housing starts, and I think that's a
18 good indication that AFCIs are doing their job.
19 Thank you.

20 MS. VALENTINE: Thank you.

21 Is there any further discussion on the
22 grouped motion to accept committee comment number
23 7738?

24 Seeing none, we will move to a vote.
25 Before we vote, let me restate the motion. The

1 motion on the floor is to accept committee comment
2 number 7738. We will take a standing vote.

3 If you wish to support the motion and
4 recommend the text on the screen with the green
5 title, please stand.

6 Thank you.

7 If you wish to vote against the motion and
8 recommend the text on the screen with the red title,
9 please stand.

10 Thank you.

11 Motion passes.

12 We will now proceed with the discussion on
13 group certified amending motion 70-84 and 70-88.

14 Microphone three, please.

15 MR. DOLLAR: Yes, I'm Randy Dollar with
16 Siemens representing American Circuit Breaker
17 Manufacturers Association or ACBMA, and I motion to
18 accept or support CAM 70-84 to accept public comment
19 1681.

20 MS. VALENTINE: Thank you.

21 There is a motion on the floor to accept
22 committee comment number 7743. Is there a second?

23 UNIDENTIFIED PARTICIPANT: Second.

24 MS. VALENTINE: We do have a second.

25 Please proceed with the discussion on the motion.

1 MR. DOLLAR: Okay. And of course, I'm
2 speaking in support of CAM 70-84. Electrical
3 malfunction is a major contributor to fires starting
4 in attics with an annual average of 4,600 fires per
5 year with 10 deaths, 70 injuries, and \$194 million
6 in damage according to NFPA 2021 home electrical
7 fires table eight. While some of these fires are
8 caused by circuits running through the attic, the
9 branch circuits feeding the attic are subject to the
10 same damage and other causes of arcing. The dangers
11 that these unprotected circuits could create should
12 not be ignored.

13 As code making panel two included in their
14 committee statement, data concerning the number of
15 electrical fires was provided in a presentation to
16 code making panel two, which demonstrated the need
17 for AFCI protection in attics. Some circuits in the
18 attics are not individual circuits and are already
19 protected by an AFCI.

20 The Commonwealth of Massachusetts has
21 required AFCI protection on all circuits since their
22 adoption in of the 2020 NEC with an amendment on
23 January 1, 2020. ESFI conducted a survey of
24 electrical contractors in Massachusetts during 2022
25 and found that there were no substantiate issues

1 related to AFCI technology. I ask that you support
2 CAM 70-84.

3 MS. VALENTINE: Thank you.

4 Larry, would you like to offer the panel's
5 position?

6 MR. AYER: I'd like to defer comment to
7 the chair of code making panel two.

8 MR. HUMPHREY: I'm David Humphrey. I
9 represent IAEE. I'm the chair of panel two, and I
10 rise in opposition to the motion on the floor.

11 The issue of expanding the requirements of
12 section 210.12 B to including attics or portions
13 thereof received abundant debate at the public
14 comment meeting. The submitted public comment
15 proposed to expand AFCI protection to branch
16 circuits installed in the attic of a dwelling unit.
17 The public comment achieved a simple majority of the
18 floor vote. The subsequent ballot failed to receive
19 the requisite two thirds votes in support of the
20 public comment, 11 in support nine in opposition.

21 A primary focus of the floor deliberations
22 by those in opposition to the expansion of AFCI
23 protection to include dwelling unit attics was to
24 question the effectiveness of AFCI devices regarding
25 fire prevention. A primary focus of those in

1 support of the expansion to include the attic was to
2 assert that cables in attics are subject to the same
3 or greater degree of hazard as may be found
4 elsewhere in the dwelling.

5 I ask you to support the work of CMP2 and
6 oppose the certified amending motion now on the
7 floor. Thank you.

8 MS. VALENTINE: Thank you.

9 With that, we will open debate on the
10 motion. Please provide your name, affiliation, and
11 whether you are speaking in support of or against
12 the motion.

13 Microphone one please.

14 MR. WATERS: Thank you.

15 My name is Keith Waters with Snyder
16 Electric, and I rise in support of the motion.

17 We've talked some discussions on fire data
18 and fire safety and fire prevention, and one of the
19 things that sometimes get lost in these discussions
20 is the impacts that fire have. We had an attic
21 electric wiring failure fire in Mississippi that
22 cost the lives of seven people, six of them were
23 children. This data is based on the fire marshal's
24 forensic report. The expansion of AFCIs for these
25 lifesaving solutions may have prevented this tragedy

1 because of the wire failure.

2 AFCIs are an important fire prevention
3 tool. This is especially important based on the
4 previous point but also since newer home furnishings
5 because we talked earlier about older homes, newer
6 homes, right? But also, since newer home
7 furnishings burn faster than older solid wood home
8 furnishings, you still have that capability. UL
9 testing has shown that there's a differential of
10 approximately four minutes to escape a fire after
11 flashover with today's furnishings versus the
12 previous 20 minutes, thereby reducing the time to
13 escape these fires.

14 I thank you and ask that you support the
15 motion.

16 MS. VALENTINE: Thank you.

17 Microphone four please.

18 MS. GENOVESE: Stacey Genovese, Leviton
19 Manufacturing speaking on behalf of the AFCI
20 consortium. I'm speaking in opposition to the
21 motion.

22 At this point in time, there is no
23 correlated data showing reduction in house fires due
24 to AFCIs. We think it's premature to expand AFCI
25 requirements to other areas of the home. This could

1 lead to interoperability issues and cause the market
2 to turn against the technology. We would like to
3 gather more data and see more testing done before
4 moving forward. There are efforts underway with
5 many different groups to get this data, and all
6 we're asking for is time to receive those and review
7 those before expanding the technology to other parts
8 of the home. Thank you.

9 MS. VALENTINE: Thank you.

10 Microphone one please.

11 MR. STEINMAN: Greg Steinman, I work for
12 ABB Installation Products, and I'm speaking on
13 behalf of myself and I'm speaking in favor of the
14 motion on the floor.

15 Earlier we heard about a house fire in
16 Mississippi that killed many people. I'm a lifelong
17 Mississippian and our building construction in
18 Mississippi like many other southern states is we
19 don't have a basement so our attics become our
20 basements. So that's where we store things and
21 throw boxes around while you're trying to balance
22 across the rafters and not fall through like a scene
23 from National Lampoon Vacation.

24 So those wires in those attics are subject
25 to damage, and AFCI protection in front of those

1 wires and those attics will give that protection and
2 may avoid death in the future. I urge you to
3 support the motion on the floor. Thank you.

4 MS. VALENTINE: Thank you.

5 Is there any further discussion on the
6 grouped motion to accept committee comment number
7 7743?

8 Seeing none, we will move to a vote.
9 Before we vote, let me restate the motion. The
10 motion on the floor is to accept committee comment
11 number 7743. We will take a standing vote.

12 If you wish to vote in support of the
13 motion and recommend the text on the screen with the
14 green titled language, please stand now.

15 Thank you.

16 If you wish to vote against the motion, I
17 recommend -- the text on the screen with the red
18 title, please stand now.

19 Thank you.

20 The motion passes.

21 Let's proceed with the discussion on
22 certified amending motions 70-79.

23 Microphone one please.

24 MR. BUCH: Dan Buch representing National
25 Association of Home Builders, and I make a motion to

1 accept public comment number 1938.

2 MS. VALENTINE: Thank you.

3 There is a motion on the floor to accept
4 public comment number 1938. Is there a second?

5 UNIDENTIFIED PARTICIPANT: Second.

6 MS. VALENTINE: We do have a second.
7 Please proceed with the discussion on this motion.

8 MR. BUCH: Thank you.

9 This CAM limits the requirement for surge
10 protection devices to only those dwelling units of a
11 multifamily building. Estimates for the useful life
12 of an SPD range from three to 10 years. The
13 notification as to whether the SPD is still
14 functioning or not is simply an LED light that is
15 either on or off. Homeowners will not know when the
16 end of life occurs and can be worse off than before.
17 What will happen when tens of thousands of these
18 devices have reached their end of life in a few
19 years?

20 The panel statement in their disapproval
21 of my public comment said that the occupant already
22 has a responsibility to test their GFCI reset
23 circuit breakers and replace batteries and smoke
24 alarms. Homeowners generally are not knowledgeable
25 enough about those systems currently required in

1 their homes.

2 In addition, when a circuit breaker or
3 GFCI trips, the occupant has an indication that they
4 need to take action. The same applies to the low
5 battery chirps from a smoke alarm. Most occupants
6 will not know what an SPD is or that they have one
7 in their home, not to mention how to verify whether
8 the SPD is still functioning or not. Please
9 support. Thank you.

10 MS. VALENTINE: Thank you.

11 Larry, would you like to offer the panel's
12 position?

13 MR. AYER: I defer any comments to the
14 chair of code making panel 10.

15 MR. PHILLIPS: Thank you. My name is
16 Nathan Phillips, and I am responding -- I'm
17 testifying on behalf of code making panel 10. and
18 I'm speaking in opposition to the motion.

19 Where a feeder supply is a single-family
20 dwelling, which is common in rural construction,
21 when the service is located away from the dwelling,
22 an SPD is required. There has not been any
23 substantiation provided to remove such protection,
24 and in response to the submitter, the members of the
25 panel did feel that the occupants of a dwelling unit

1 have the capability of observing whether or not an
2 SPD is in an operable condition or not. Thank you.

3 MS. VALENTINE: Thank you.

4 With that, we will open debate on the
5 motion. Please provide your name, affiliation, and
6 whether you are speaking in support of or against
7 the motion.

8 Microphone four, please.

9 MR. WATERS: Thank you. My name is Keith
10 Waters. I'm with Snyder Electric, and I rise in
11 opposition to the motion.

12 As code panel 10 has stated, homeowners
13 have the ability to determine if an LED light is on
14 or it's off or green or a red. So the statement
15 that the homeowner won't know whether the surge
16 protective device is not functioning or not, I don't
17 think is something that we all as homeowners or
18 those that may not even be in our industry will be
19 able to address. I do not see an issue with that.
20 Thank you.

21 MS. VALENTINE: Thank you.

22 Microphone four again.

23 MS. HAYES: My name is Megan Hayes. I
24 represent the National Electrical Manufacturers
25 Association, and I'm speaking in opposition to the

1 motion.

2 NEMA opposes CAM number 7079. Surge
3 protective devices safeguard critical life safety
4 devices such as smoke alarms, GFCIs, and AFCIs from
5 damage due to transient over voltage. Single-family
6 dwelling units experience surge events that can
7 damage these installed devices. Thank you.

8 MS. VALENTINE: Thank you.

9 Microphone two please.

10 MR. HICKMAN: Thank you.

11 Palmer Hickman representing myself. As I
12 look at this, my colleague had to help me understand
13 what I'm actually seeing. So as a code is written
14 as code panel 10 accepted it, this applies to
15 dwelling units. This CAM will significantly reduce
16 the amount of places that are protected, so it's no
17 longer dwelling units. it's only dwelling units of
18 multifamily buildings, so it's going to eliminate --
19 so now it's any dwelling unit including dwelling
20 units of multifamily buildings. And now it's only
21 going to be those greatly reduced amount of places
22 that are protected. So I, again, speak against the
23 motion. Thank you.

24 MS. VALENTINE: Thank you.

25 Microphone two, please.

1 MR. ODI: Mark Odi representing myself
2 basically, and again, in opposition to the motion.
3 Just like Palmer just talked about, this is going to
4 be truly restrictive, a lot more restrictive than
5 what you could normally see in this application
6 because now we're taking that away from single-
7 family dwellings. It's going to only apply to
8 dwelling units in a multifamily building. Now not
9 going to apply to a single family anymore or two-
10 family dwellings. It's going to be only for
11 multifamily dwellings, and this to me is going to be
12 too restrictive, and you're going to lose protection
13 of those surge protective devices for regular
14 dwelling units. Thank you.

15 MS. VALENTINE: Thank you.

16 Microphone four please.

17 MS. NEWMAN: Susan Newman-Scearce,
18 representing myself as a homeowner, a homeowner that
19 had a surge protection device on her meter socket.
20 It was hit by lightning --

21 MS. VALENTINE: Speaking for or against
22 the motion?

23 MS. NEWMAN: I am in opposition of the
24 motion.

25 MS. VALENTINE: Thank you.

1 MS. NEWMAN: And when I noticed that a
2 light had gone out, we further investigated with the
3 utility to check. there was a lug melted. This
4 could have resulted in the loss of my home.
5 However, it was caught in time by that surge
6 protection device and able to make remediation to
7 that in order to be a safe dwelling unit. Thank
8 you.

9 MS. VALENTINE: Thank you.

10 Microphone two please.

11 MR. WHISTLER: Wendell Whistler and I
12 oppose this motion, and it is because this is
13 nothing more than an attempt by certain factions to
14 --

15 MS. VALENTINE: And who are you
16 representing, sir?

17 MR. WHISTLER: Myself.

18 MS. VALENTINE: Thank you.

19 MR. WHISTLER: To minimize their costs and
20 homeowners have a reasonable expectation of us as
21 electricians and the electrical industry to provide
22 safe operating systems. And I disagree with the
23 person that said you can't tell whether the light
24 went out. Some of these even have peso alarms on
25 them, and if the home builder that's selling you the

1 place is doing their job, they're going to
2 familiarize you with all these safety things. And
3 so to say that they're ignorant and won't know how
4 to do it, I disagree, and I urge you to oppose this
5 motion.

6 MS. VALENTINE: Thank you.

7 Is there any further discussion on motion
8 70-79 to accept public comment number 1938?

9 Seeing none, we will move to a vote.

10 Before we vote, let me restate the motion. The
11 motion on the floor is to accept public comment
12 number 1938. We will take a standing vote.

13 If you wish to vote in support of the
14 motion and recommend the text on the green titled
15 screen, please stand now.

16 Thank you.

17 If you wish to vote against the motion and
18 recommend the text on the red titled screen, please
19 stand now.

20 Thank you.

21 The vote is closed. The motion has
22 failed.

23 Thank you. Before I turn over the podium
24 for the next group of certifying amending motions
25 for consideration on the agenda, I would like to

1 express my thanks to you, the participants here
2 today. It's been my pleasure to act as a presiding
3 officer, and when we resume from a 10-minute break,
4 Michael Crowley, NFPA standards council member, will
5 take over duties as presiding officer. Thank you.

6 CHAIR CROWLEY: All right. Good
7 afternoon. My name is Michael Crowley, and I'm
8 going to be your presiding officer for the remainder
9 of the day.

10 We have set a time now for the ending.
11 We'll either go to CAM 70-172, or we will take no
12 new CAMs after 4:30 this afternoon. So that's going
13 to be our ending point for today.

14 All right. I'd like to thank Victoria,
15 and we'll be ready to move on our agenda. We'll
16 proceed with calling certified amending motions for
17 NFPA 70 in the order in which they are published in
18 the agenda. For a full list of these CAMs, please
19 reference the motions committee annual report, page
20 4.

21 Okay. Let's now proceed with a discussion
22 -- I'm sorry. Yeah, let's now proceed with
23 discussion on motion 7-36 -- I'm sorry, 38.

24 MR. GRACER: Thank you, Mr. Chair, and
25 good afternoon.

1 My name is Peter Gracer. I represent
2 Copper Weld Bio Metallics. The next two CAMs on the
3 agenda are mine. I will not move them today.
4 Please remove 7038 and 41 from the agenda. Thank
5 you.

6 CHAIR CROWLEY: Okay. Thank you. Okay.
7 I have to find my page for that one. Here we go.
8 We're going to modify this one a little bit.

9 Okay. So CAM 70-38, which is what we just
10 had, the individual has -- well, we're going to be -
11 - basically, seeing that the motion maker has
12 decided not to pursue this, in accordance with the
13 convention rules and section 2.7, the motion may not
14 be considered by the assembly as a certified
15 amending motion as removed and is removed from the
16 agenda. We'll now move on to the next motion. Have
17 to have you come up again.

18 So next motion is going to be motion 70-
19 41. I think that's you again, Peter. Sorry, got to
20 get it documented.

21 MR. GRACER: Thank you, Mr. Chair. Peter
22 Gracer, Copper Weld Bio Metallics. I will not be
23 moving this motion today, 7041. Please remove it
24 from the agenda. Thank you, sir.

25 CHAIR CROWLEY: Thank you.

1 Okay. CAM 70-41 In accordance with the
2 convention rules, this motion may not be considered
3 as part by the assembly as a certified amending
4 motion and is removed from the agenda.

5 We will now move on to the next motion.
6 Motion 70-106.

7 Microphone number three.

8 MS. HUNTER: Thank you. My name is Chris
9 Hunter with Sarah Wire. I'm speaking on CAM 70-106,
10 and I move to accept public comment number 1395.

11 CHAIR CROWLEY: There's a motion on the
12 floor to accept public comment number 1395. Is
13 there a second?

14 UNIDENTIFIED PARTICIPANT: Second.

15 CHAIR CROWLEY: We do have a second.
16 Please proceed with discussion on the motion.

17 MS. HUNTER: Thank you. Again, I'm Chris
18 Hunter with Sarah Wires speaking in support of the
19 motion. This motion seeks to retain the minimum
20 conductor sizes of 14-gauge copper and 12-gauge
21 copper clad aluminum. If we allow reduced size
22 branch circuit conductors under the existing code
23 requirements, we are creating an unacceptable risk
24 of overheating and fire. The smaller the conductor,
25 the higher the resistance. The higher the

1 resistance, the more heat we generate. That means
2 that small conductors run through thermal
3 insulation, have a much greater chance of
4 overheating and creating a hazardous condition.

5 We have no circuit length limits in the
6 code right now for these conductors, and we have no
7 enforceable language to account for increased
8 thermal insulation R values and the buildup of heat
9 that occurs in these installations. There are two
10 specific concerns. Circuits run through thermal
11 insulation and excessively long circuit lengths.
12 Thermal insulation traps the heat, and long circuit
13 lengths restrict the ability of the conductor to
14 conduct enough fault current to open a circuit
15 breaker quickly enough to extinguish an arcing fault
16 and prevent fires that occur when nearby materials
17 ignite from that arcing fault.

18 If you've been told that the purpose of
19 this motion is competitive, it is not. If this was
20 a competitive issue, no one would've objected after
21 the 2023 NEC first draft. I serve on code making
22 panel six, and at that point, the panel had agreed
23 to include both 16-gauge copper and 14-gauge copper
24 clad aluminum. That created an even feel from a
25 competitive standpoint, so there would've been no

1 need for further studies or effort to investigate
2 the issue just for competitive concerns.

3 Instead, additional concerns were
4 addressed with testing that showed serious heating
5 issues with smaller conductors, and these smaller --
6 excuse me -- smaller sizes were not included in the
7 last cycle. This is strictly a safety issue. Once
8 we allow these smaller conductors in the code,
9 there's no going back. We need to be very, very
10 sure before we make a significant change like this.
11 We are not sure of that yet. Please support this
12 motion. Thank you.

13 CHAIR CROWLEY: Thank you.

14 Larry, would you like to offer the panel's
15 response?

16 MR. AYER: I'd like to defer comment to
17 the chair of code making panel six.

18 MS. NEWMAN: Good afternoon. Susan Newman
19 Searce, chairperson of code making panel six,
20 serving my third session on three terms as panel six
21 and we have done this and gone through this through
22 all three cycles. so I would like to thank you,
23 Mrs. Hunter, for the submission addressing the
24 public comment number 1395 for NFPA 70.

25 I would also like to thank our panel

1 members that worked so diligently for the past three
2 cycles on all of the public inputs and the comments
3 that have come in and we have addressed.

4 to the body of NFPA, the code making panel
5 six recommended the action to reject certified
6 amending motion number 70-106. This decision comes
7 after two national electrical code revision cycles
8 of debate, multiple presentations, task group work,
9 and many hours of code making panel members'
10 dedication. This public input and public comment
11 was discussed in various situations, but the CMP's
12 concern was heightened as being unable to enforce in
13 the field as an AHJ inspector with a public comment
14 containing a voltage drop limit to 5 percent or
15 less.

16 The results with the majority voting for a
17 rejection of public input number 2861 and public
18 comment number 1395 at the second revision cycle of
19 code making panel six session. This committee asks
20 you to reject certified amending motion number 70-
21 106 giving support for the actions of the voting
22 majority code making panel six members. Thank you.

23 CHAIR CROWLEY: Thank you.

24 With that we'll open debate on the motion.
25 Please provide your name, affiliation, and whether

1 you're speaking in support or against the motion.

2 Microphone number three.

3 MR. MARCIANO: My name is Alex Marciano.
4 I work for Marmonai (phonetic), and I rise in
5 support of the motion on the floor.

6 The information provided to the code
7 making panel six during the 2026 code cycle did not
8 address the substantiation requested by the same
9 code making panel in the 2023 national code process.
10 The panel spent significant time developing the task
11 protocol, and the information provided did not meet
12 this criteria. The UL representative on the panel
13 voted against permitting smaller branch circuits for
14 the exact same reason. The tests were not provided.

15 Instead, other tests were performed that
16 gave no new information. There was a committee put
17 together by the Fire Protection Research Foundation
18 at the request of CMP6. The report from that
19 committee concerning smaller circuit concluded that
20 and are written verbatim, "In conclusion, the
21 analysis reviews a series of knowledge gaps that if
22 addressed through further research and
23 experimentation would significantly enhance our
24 understanding of the performance of small branch
25 circuit conductors within thermal building

1 insulation."

2 Those knowledge gaps still exist. It was
3 already known to the panel for short sections of
4 conductor and thermal installation the heat sink
5 effect of the terminations and the dissipation of
6 the heat where the conductors emerge would result in
7 lower temperatures. However, the conductors in the
8 middle of the run were much hotter than at the ends
9 which had already been proved in previous tests.

10 In summary, the question raised regarding
11 the practical safe and -- safe use of smaller brain
12 circuits have still not been sufficiently, and until
13 they are, it is a hazard to introduce this higher
14 resistance conductors in our homes and businesses.
15 Thank you.

16 CHAIR CROWLEY: Thank you.

17 Microphone number two.

18 MR. HECKER: Thank you, Mr. Chair.

19 Eric Hecker, Kenna Metal speaking on
20 behalf of the NFPA electrical section in opposition
21 to the motion. the electrical section voted to
22 oppose this motion on its business meeting on
23 Monday. Thank you.

24 CHAIR CROWLEY: Thank you.

25 Microphone number one.

1 MS. HAYES: Thank you. Megan Hayes from
2 the National Electrical Manufacturers Association
3 speaking in support of the motion. NEMA supports
4 CAM 7106. NEMA continues to oppose the use of
5 smaller conductor sizes and branch circuits. This
6 motion aligns with the NEMA position taken since the
7 second draft of the 2023 NEC process. At the end of
8 that process, CMP6 produced a carefully detailed
9 panel statement that included testing requirements
10 considered necessary to move forward with these
11 changes. Since then, no tests meeting these
12 requirements have been provided to the CMP for
13 review. Thank you.

14 CHAIR CROWLEY: Thank you.

15 Microphone number four.

16 MR. GRACER: Yes, Peter Gracer, Copper
17 weld Bio Metallica speaking in opposition to the
18 motion. There are two important organizations that
19 have endorsed opposing this CAM, the NFBA electrical
20 section and the NFBA electrical inspector section.
21 The inspectors were unanimous in their opposition.
22 This CAM seeks to overturn the will of a technical
23 panel for competitive reasons alone. The NFBA
24 process gives much deference and respect to the
25 actions of code making panels. The panel in this

1 case was strongly opposed to the idea behind this
2 CAM. Panel six supported 10-amp conductors in both
3 the first and second revisions, a clear mandate.

4 The public comment behind this CAM,
5 however, was rejected in the second revision
6 meeting, the panel giving it no merit at all. The
7 reject statement said there's no test data with
8 this. How can we make a decision? We can't reverse
9 our first revision position.

10 So to be clear, no technical data at all
11 was provided in opposition to 10-amp conductors in
12 this cycle.

13 Zero. No stats or proof that voltage drop in 10-amp
14 conductors causes fires and circuits and homes and
15 installations. Nada. Just loud voices trying to
16 induce fear. This PC came with only a strong desire
17 to limit your options as a consumer, which it failed
18 to do.

19 This panel has seen it all, every
20 technical angle including voltage drop which was
21 discussed at length in both drafts and rejected both
22 times. The panel has consumed a decade of research
23 over three cycles. It has reviewed no fewer than 20
24 formal test reports on this question.

25 The truth is this voltage drop is a design

1 consideration, not a safety one. When you have less
2 load on a wire, you have less voltage drop. The
3 panel limits 10-amp wires to less load. They are
4 limited, these circuit conductors, to high
5 efficiency lighting circuits that draw low amperage
6 less load and thus little voltage drop.

7 Voltage drop is even less of a concern
8 with 10 amps circuits than it would be in larger
9 ones that have less limits. That's what the panel
10 concluded, and that's why the second draft appears
11 as it does. So because you, we, value in this
12 process research, data-driven decisions and
13 technical expertise, and because you respect the
14 decisions of code making panels, please vote with me
15 and oppose this motion. Thank you.

16 CHAIR CROWLEY: Thank you.

17 Microphone number three.

18 MR. MOHAMMED: Thank you. Sam Mohammed,
19 the Aluminum Association speaking in support of the
20 motion on the floor.

21 Outside the more ideal lab conditions, the
22 question of lowering our field pro and minimum sizes
23 of conductors from 14 AWG comes with concerns. Real
24 world installations don't always mirror lab test
25 setups. Smaller conductors exhibit higher operating

1 temperatures under fault and continuous loading,
2 reducing insulation life and increasing risk of
3 degradation over time.

4 The current 14 gauge minimum provides a
5 robust safety buffer against unexpected overloads
6 and ambient temperature extremes. Moving from 14 to
7 16-gauge results in a significant reduction in
8 conductor area. This higher resistance per meter
9 not only increases (inaudible) losses generating
10 more heat but also amplifies voltage drop in typical
11 run lengths undermining both efficiency and safety.

12 In long runs, downsizing to 16 gauge would
13 yield significantly higher voltage drop. Safety
14 circuits may not meet their design tolerances.
15 Maintaining 14 gauge ensures voltage drop
16 calculations remain conservative for reliable
17 equipment operation.

18 Field wiring, as you know, is subject to
19 bending, pulling around fittings and integration
20 thinner conductors are more prone to kinking and
21 strand fracture during installation and maintenance.
22 On lowering minimum conductor sizes, there still
23 remains overarching unresolved concerns of
24 overheating from over current. We should first
25 strive to achieve a much better handle on the

1 working of these small brand circuit conductors
2 through further research as well as more research on
3 their use thermal building installation before
4 unequivocally greenlighting lower minimum conductor
5 sizes if we need to uphold safety first. Thank you.

6 CHAIR CROWLEY: Thank you.

7 Microphone number four.

8 MR. MOORE: Thank you, Mr. Chair. My name
9 is Tom Moore, and I'm speaking on behalf of the
10 electrical inspection section of NFPA as its
11 official representative and speaking against the
12 motion. The electrical inspection section had its
13 business meeting on Monday of this week, and at that
14 meeting, the section voted not to support this
15 motion. Thank you.

16 CHAIR CROWLEY: Thank you.

17 Microphone number one.

18 MS. CRAWFORD: Thank you.

19 My name is Carly Crawford with Marmon
20 Electrical, and I'm speaking in support of the
21 motion. I would like to share with you the results
22 of testing performed at our facility. To assess the
23 safety of 14-gauge copper clad aluminum conductors
24 used in branch circuit applications with an amp
25 assigned of 10 amps at 60C and 20 amps at 90C, tests

1 were conducted at Marmon Innovation and Technology
2 Center in East Brandy, Connecticut. This is a UL
3 certified lab with personnel experienced in a wide
4 range of certification and performance tests for
5 wiring cable products.

6 To evaluate the realistic application of
7 14-gauge copper clad conductors in residential and
8 commercial type installations, cables were installed
9 in thermal installation and a load applied. NMB
10 cables are commonly installed in thermal
11 installation and are permitted to be embedded and
12 surrounded by thermal insulation in ceilings and
13 walls. The cable temperature was measured to
14 determine the temperature rise over time. NMB cable
15 with 14-gauge copper clad conductors with a load of
16 less than 10 amps reached temperatures above 60C in
17 approximately one hour. NMB cable with 14-gauge
18 copper clad conductors with a load of less than 20
19 amps reached temperatures above 90C in approximately
20 20 minutes.

21 The testing was terminated due to safety
22 concerns after the cable reached 150C and showed no
23 signs of stabilizing. Each of these tests were
24 performed in an ambient temperature of less than
25 30C. Only a single cable was installed in each

1 installation with significant spacing between the
2 cable sections in order to avoid mutual heating due
3 to proximity.

4 The NEC permits multiple cables to be
5 installed without spacing and thermal insulation
6 without temperature correction which would result in
7 even higher temperatures due to the heat
8 contribution from multiple cables. These results
9 show that in common everyday installations, the
10 cable will overheat even when loaded at less than
11 the values being proposed for inclusion in table
12 310.16. Thank you.

13 CHAIR CROWLEY: Thank you.

14 Microphone number four.

15 MR. MELLOW: Thank you, Mr. Chairman.

16 My name is Chuck Mellow, consultant with
17 CDC Mellow Consulting speaker on behalf of Copper
18 Weld. By the ballot vote of 18 to one --

19 CHAIR CROWLEY: Excuse me, for or against?

20 MR. MELLOW: I'm speaking against the
21 motion, in opposition.

22 CHAIR CROWLEY: Thank you.

23 MR. MELLOW: Thank you, Mr. Chair.

24 By the ballot vote of 18 to one, members
25 of panel six strongly disagreed with the assertion

1 of not having sufficient data and knowledge. This
2 was a vote array affirmation of the first draft
3 action that they took to include the 14-copper clad
4 aluminum and 16 copper. The second draft was that
5 affirmation of that along with adding an
6 informational note as shown on the screen.

7 CMP6 gave a clear mandate of the 10-amp
8 branch circuit with a decade of research and
9 technical substantiation over three cycles. The
10 testing provided called the recommendations of the
11 National Fire Protection Research Foundation and
12 their report that result that reviewed 20 test
13 reports and came back with recommendations for doing
14 the testing. That testing was done in thermal
15 insulation. It was done in an independent location
16 with construction destruction witnessed by
17 Intertech. It was also witnessed by John Vacik
18 (phonetic) and other individuals that were
19 independent reviewing of that.

20 That result was provided to panel six to
21 give them substantiation. By their vote, panel six
22 basically said the information from the 2023 cycle
23 was now mute. We have the data, bringing that up.
24 And I will note that the ballot for that item in the
25 2022 failed ballot, it did not pass the ballot two

1 thirds.

2 I strongly recommend that you vote against
3 this motion, and again, the 2026 actions of the Fire
4 Protection Research Foundation and the data itself
5 and panel six's action indicate that they are
6 satisfied that 14 copper clad aluminum and 16 copper
7 can safely provide the 10-amp branch circuit.

8 To specifically address that heating
9 effect we're talking about, this is going to be a
10 10-amp branch circuit, not rated at 15, not rated at
11 20. It also is allowed to go with a conductor
12 temperature that's required to have a 90 degrees
13 insulation. So I want you to be aware of that from
14 the testing standpoint and information you're being
15 given. Thank you.

16 CHAIR CROWLEY: Thank you.

17 Microphone number three.

18 MR. ODI: Mark Odi and I'm representing
19 myself and I'm speaking in support of the motion.

20 I think it's interesting if we open this
21 up to number 16 copper and number 14 copper clad
22 aluminum here in 310.5 A for branch circuits, we
23 already give you permission to do that elsewhere in
24 the code. If I go back and I look in 210.23A 1 and
25 2, it restricts the number 14 that we're going to

1 have for copper clad aluminum to certain loads. We
2 have the same type of thing in 240.4 D.

3 And it already says, again, if you look at
4 the way the code is worded, it shall be number 14
5 AWG copper, number 12 AWG, copper clad aluminum, et
6 cetera, and except as permitted elsewhere in the
7 code. So if we have the limitations in each one of
8 those sections that we have that I spoke of, 210.23,
9 240.4D, et cetera, when you look at the small
10 conductors that we have, again, the reason behind
11 that is because we don't have enough air circulation
12 surrounding the smaller conductors. That's why
13 240.4D is actually labeled the small conductor rule.

14 The smaller the conductor we get, the
15 bigger the problems are going to be, and if we limit
16 those to whatever kind of load we have in the
17 future, that portion of this 310,5A except as
18 permitted elsewhere in the code is going to apply.
19 But we're not going to open up the entire door to
20 let everything in like it's shown right now. So I'm
21 in support of the motion.

22 CHAIR CROWLEY: Thank you.

23 Microphone number four.

24 MR. HURLEY: My name is Mark Hurley. I'm
25 with the Alumni Code Consulting Group representing

1 Copper Weld, and I speak in opposition to the
2 motion.

3 No credible data has been provided against
4 the use of the 14-gauge, 14 AWG copper-clad
5 aluminum, and all you've heard so far has been
6 anecdotes and scare tactics. The process has taken
7 place over three code cycles, and it certainly has
8 been challenging. The 2026 process has been fair,
9 orderly, and proper. If anything was amiss, it was
10 in the last code cycle where at the second draft
11 stage of the 2023 cycle, test reports were delivered
12 to the committee on the opening day of the meeting
13 allowing them no real time to consider the
14 information. And the testing didn't document the
15 so-called copper clad aluminum conductors that were
16 used.

17 In addition, the testing configurations
18 did not represent a real-world electrical
19 installations. As Mr. Mellow said, no knowledge
20 gaps exist. The panel has considered all of the
21 issues and reviewed a lot of test reports. Voltage
22 drop has been mentioned, and voltage drop exists in
23 all electrical circuits and the NEC committees have
24 known about it since about 1897. So there's nothing
25 new to report that.

1 The NEC restricts voltage drop for fire
2 pumps and certain sensitive electronic equipment.
3 Long runs exist in a lot of circuits, and it's a
4 design consideration. An engineer responsible for
5 an installation design needs to consider that
6 regardless of the size of conductor. I urge you to
7 oppose the motion on the floor. Thank you.

8 CHAIR CROWLEY: Thank you.

9 Microphone number one.

10 MR. WATSON: Thank you.

11 My name is Dave Watson, principal engineer
12 with South Wire, representing myself and I'm
13 speaking in support of this motion.

14 In addition to being a member of many UL
15 CSA, NEMA, KNA (phonetic), and other technical
16 committees, I'm a member of code making panel six
17 and a degreed electrical engineer.

18 A lot of testing was performed during the
19 2020 and 2023 code cycles, and CMP6 voted against
20 the addition of these smaller conductors for power
21 and lighting circuits. At the end of the 2023
22 process, CMP6 produced a detailed panel statement
23 including testing requirements to submit for the
24 2026 code cycle. Test results meeting that list of
25 requirements have not been received by CMP6.

1 Also, in August of 2023, the NFPA Research
2 Foundation issued a report on the installation of
3 small branch circuit conductors within thermal
4 building installation. Quoting from the report,
5 "This section specifically highlights gaps in our
6 understanding of the performance of both existing
7 small conductors as outlined in section 240.4 D2
8 through D8 and proposed conductor sizes, namely 16-
9 gauge copper and 14-gauge copper clad aluminum."

10 Also, quoting from the report, "The intent
11 is to create a standard test method that can result
12 in comparable and verifiable results and to improve
13 upon knowledge gaps." That standard has not been
14 developed yet. While some additional testing was
15 performed during the 2026 cycle, it was not
16 performed to a standard for such testing since that
17 standard does not yet exist. In light of this, I
18 ask that you approve this motion and send this
19 action back to CMP6 for further consideration.

20 Thank you.

21 CHAIR CROWLEY: Thank you.

22 Microphone number two.

23 MR. MCCLEARY: Mr. Chairman, Shane
24 McCleary, Bail Alarm Company, and I rise the call of
25 the question.

1 UNIDENTIFIED PARTICIPANT: Second.

2 CHAIR CROWLEY: Okay. There's a motion on
3 the floor to call a question. I have a second. I
4 noticed that we have a number of people remaining at
5 the microphones waiting to speak, but we'll proceed
6 with the vote on the call to question.

7 If you wish to call the question, please
8 rise.

9 Okay. Thank you. You may sit.

10 For those who wish to resume debate,
11 please rise.

12 Motion passes.

13 We will move on to the vote. Before we
14 go, let me restate the motion. The motion on the
15 floor is to accept public comment number 1395. If
16 you're in favor of the green, please rise.

17 Okay. All right. Thank you.

18 All those opposed to the motion, please
19 rise.

20 Too close to call.

21 All right. Please sit down.

22 Okay. It was so close, we're going to
23 have to do account. So all those in favor of the
24 motion, please rise, and you'll have to stay rising
25 while we get our staff to count. Again, make sure

1 you have your badges showing.

2 Okay. Thank you. Sit down.

3 All opposed to the motion, please rise.

4 Okay. The motion passes 236 to 230.

5 Okay. Let's proceed on to and amending
6 motion 70-105.

7 Microphone three.

8 MS. HUNTER: Thank you, Mr. Chair.

9 Based on the results of the last motion
10 and out of respect for the time of this body, I will
11 withdraw the motion. Thank you.

12 CHAIR CROWLEY: Okay. Let me find that
13 one. I didn't think I get that many times I have to
14 do this.

15 Okay. CAM 107, in accordance with the
16 convention rule section 2.4, the motion has been
17 withdrawn. The motion may not be considered by the
18 assembly as a certified amending motion and will be
19 removed from the agenda.

20 We will move on now to the next motion,
21 which is going to be -- the next motion is 129.
22 129. Okay. Very good. Let's proceed with the
23 discussion on certified amending motion number 70-
24 129.

25 Microphone three.

1 MR. ROCHA: Hello, Mr. Chair. My name is
2 Paul Rocha (phonetic) from 3M Company. I'm speaking
3 for CAM 7129, and I make a motion to accept an
4 identifiable part of public comment 1755.

5 CHAIR CROWLEY: Okay. Thank you. We have
6 a motion. Is there a second?

7 UNIDENTIFIED PARTICIPANT: Second.

8 CHAIR CROWLEY: I heard second. Thank
9 you.

10 Please proceed.

11 MR. ROCHA: Thank you, Mr. Chair. Article
12 315.2 in the second provision --

13 CHAIR CROWLEY: Excuse me, please give me
14 your name, affiliation and --

15 MR. ROCHA: Sure. Paul Rocha from 3M in
16 support for the motion.

17 CHAIR CROWLEY: Thank you.

18 MR. ROCHA: Article 315.2 in the second
19 revision currently has a requirement for listing
20 medium voltage cable accessories with an effective
21 date of 2029. I'm advocating for this date to be
22 moved to 2032.

23 Listing of medium voltage cable
24 accessories is accomplished by testing against
25 current IEEE standards, specifically IEEE 48, 404,

1 and 386. IEEE 48 and 404 are scheduled to be
2 obsoleted in 2030 and 2032 respectively and they
3 will be replaced by IEEE 48404.1, which is scheduled
4 to be published in 2029.

5 This new standard contains significant
6 changes that will require manufacturers to retest
7 medium voltage cable accessories products to meet
8 new criteria outlined in the standard. If the
9 effective date remains 2029, manufacturers will face
10 the undue burden of testing their products to meet
11 the current standards, only to be required to retest
12 shortly thereafter to comply with the new standards.
13 This would be an efficient, impractical, and
14 economically burdensome.

15 Furthermore, there are only a few third-
16 party laboratories equipped to conduct some of these
17 tests, and this limited availability could lead to
18 bottlenecks intensifying the difficulties that
19 manufacturers face in meeting the 2029 deadline and
20 transitioning to the new standards. As a result,
21 the market supplies of these products could be
22 significantly hindered, potentially causing a
23 nationwide slowdown in construction activities.

24 I will conclude by pointing out that in
25 the published meeting minutes of the second draft

1 meeting for CMP9 on page 66, task group two, which
2 is the subgroup of CMP9 that worked on public
3 comment 1755 said the following with the regards to
4 the effective date portion of the public comment and
5 I quote, "It is the opinion of the task group that
6 the effective date of the listing requirements in
7 315.2 was too short of a time for an adequate
8 listing to be written and implemented. Thus, the
9 extension to 2032." Please support the motion.

10 Thank you.

11 CHAIR CROWLEY: Thank you.

12 Larry, would you like to give the position
13 of the panel?

14 MR. AYER: I'd like to defer comments to
15 the chair of code making panel nine.

16 MR. O'CONNELL: Thank you, Mr. Chair.

17 My name is Michael O'Connell. I represent
18 the IBW. I'm a panel nine member. Rod Belisle was
19 unable to make it today so I'll speak on behalf of
20 CMP9.

21 Mr. Rocha is requesting a delay in the
22 listing requirements stated in 315.2 of the 2026
23 edition of the NEC. The current text of the 2026
24 edition requires a listing effective January 1,
25 2029. Mr. Rocha is proposing to delay this

1 effective date to January 1, 2032.

2 The progression of listing is currently
3 drafted in 315.2 of the 2026 edition is as follows.
4 In 2020 during the first draft report of the '23
5 edition listing was introduced for type MV cable
6 joints, cable terminations connectors with an
7 effective date of January 1, 2026. During the
8 public comment stage of the 2023 edition, two public
9 comments were received and addressed by CMP6. Mr.
10 Rocha submitted one in which he commented that
11 listings should be replaced with, and I quote here,
12 "type tested to the respective IEEE standard by the
13 manufacturer."

14 This public comment was rejected by CMP6
15 as it determined that the listing requirement did
16 not create a misalignment with the industry as was
17 suggested by the submitter. During the 2026 public
18 input stage, three public inputs were received
19 regarding 315.6, one of which proposed updating
20 315.6 to 315.2 as a correlation issue. This was
21 accepted as a first revision.

22 The remaining portion of the PI to remove
23 listing altogether was not moved forward. Another
24 one of the PIs suggested delaying the listing
25 requirement to 2029 rather than 2026, which was also

1 accepted as part of the first revision.

2 The final input from NEMA proposed
3 removing the listing requirement and replacing the
4 term identified in quotes, the PI was also resolved
5 by CMP9. During the public comment stage of 2026,
6 Mr. Rocha again suggested that listing be removed
7 and replaced with testing to the relevant IEEE
8 standard effective January 1, 2032. This public
9 comment was rejected. Thank you.

10 CHAIR CROWLEY: Thank you.

11 Microphone number one.

12 MR. AYERS: Hello, my name is Brian Ayers
13 with TE Connectivity, and I am speaking in
14 supporting of the motion. TE Connectivity is one of
15 the largest manufacturers of medium voltage cable
16 accessories, and we make quite a lot of these. I
17 will be honest, I'm a IEEE guy. I've spent a lot of
18 time in standards. I'm the vice chair of a numerous
19 amount of standards committees. I sit on the 404
20 committee, the 48 committee, and the 386 committee.

21 There isn't a lot of crossover for better
22 or worse between the people who've done medium
23 voltage cable accessories in the past with NFPA.
24 This is a whole new world for us to be a part of,
25 and as part of it, we're participating in doing

1 that, but look, I make a lot of these products. I
2 saw some of my products as I drove in from the
3 airport yesterday. We just frankly can't get this
4 done in time.

5 We have an ISO 17025 laboratory, one of
6 the larger ones because we're a big manufacturer.
7 You add the time up. I can't do it in time. I mean
8 that's really fundamentally what it boils down to.
9 I mean, it's not that we're not trying to play. I
10 just can't do it.

11 CHAIR CROWLEY: Okay. Thank you.

12 Microphone number three.

13 MR. MADDEN: My name is Jeff Madden. I'm
14 speaking in support of motion 129. I am the current
15 chair of IEEE 404 as well as the chair of the future
16 standard 48 404.1. Medium voltage products have
17 been qualified and installed per these IEEE
18 standards since their inception. These standards
19 are currently undergoing a fundamental change in
20 scope and testing requirements, and these changes
21 are directly applicable to this listing requirement.

22 The new standard will not be published
23 until 2029. The new standard will have a new
24 classification with more stringent test
25 requirements. This new test program is being

1 implemented to improve liability for modern
2 applications where the load profile is different
3 significantly compared to Legacy utility systems.

4 Manufacturers are now designing new
5 products for this new test; However, they cannot
6 start the qualification process until the standard
7 is published in 2029. This extension is necessary
8 for this new test program to be considered during
9 the listing process.

10 If this motion fails, this will require
11 manufacturers to repeat the qualification testing
12 that has already been completed, then they will have
13 to start over and repeat to the new test program.
14 This will take years to complete, and there's a very
15 limited number of labs to do this testing. This
16 will only benefit the testing and listing
17 organizations and significantly delay the timeframe
18 to get products -- better products into the field.

19 Our focus as an industry should be on
20 improving our electrical systems, not doing
21 paperwork for the sake of paperwork.

22 Thank you and I encourage you to please
23 support this motion.

24 CHAIR CROWLEY: Thank you.

25 Microphone number two.

1 MR. HICKMAN: Thank you.

2 Palmer Hickman representing the
3 International Brotherhood of Electoral Workers. I
4 am speaking an opposition to this motion. I heard
5 something earlier that struck me as odd. I've been
6 involved in the NEC process for 25 years, and task
7 groups are relatively new. And it was mentioned
8 that the task group meant their report or their
9 statement said it should be pushed off to 2032. The
10 task group report means absolutely nothing. It's a
11 recommendation to take to the full committee as
12 anyone on a technical committee knows, so that means
13 absolutely nothing. Only the vote and the statement
14 of the making panel is the statement that matters
15 and the action that matters.

16 So I again, speak in opposition to this
17 motion and to support the code making panel's
18 action. Thank you.

19 CHAIR CROWLEY: Thank you.

20 Microphone number one.

21 MS. HAYES: Thank you. Megan Hayes with
22 the National Electrical Manufacturer's Association
23 in support of the motion.

24 NEMA supports the proposed changes
25 outlined in CAM 70-129. The effective date for the

1 listing of medium voltage cable accessories is
2 currently set for 2029. However, we advocate for
3 this date to be moved to 2032. Some IEEE standards,
4 which these accessories would need to be tested
5 against under the proposed listing requirement, are
6 set to become obsolete in 2030 and 2032. The new
7 IEEE standard expected to replace them is
8 anticipated to introduce substantial changes that
9 will require new compliance testing for all relevant
10 products sold into these markets. Thank you.

11 CHAIR CROWLEY: Thank you.

12 Microphone number three.

13 MR. ROCHA: Paul Rocha from 3M speaking in
14 support of the motion. I would like to make a
15 clarification from a comment earlier from Mr.
16 O'Donnell that the current CAM 70-129 is only
17 concerned with the effective date, not the validity
18 of the listing. And so the move is from 2029 to
19 2032 in order to support testing to the new standard
20 that is coming out in 2029. Thank you.

21 CHAIR CROWLEY: Thank you.

22 Microphone three.

23 MR. OSBORNE: Thank you.

24 Robert Osborne, UL Solutions speaking in
25 support of the motion, have been the chair of the

1 Medium Voltage Task Group since 2019. I believe the
2 public comment was actually one that I had
3 submitted. For all of the reasons stated about the
4 standard, I am in agreement that this should be
5 supported, so I'm in support of the motion. Thank
6 you.

7 CHAIR CROWLEY: Thank you.

8 Is there any further discussion on motion
9 70-124 to accept public comment number 1755?

10 All right. Seeing none, Larry, would you
11 like an opportunity for any final comments?

12 MR. AYER: I'd like to defer any further
13 comments to the chair of panel nine.

14 MR. O'CONNELL: Thank you, Mr. Chair.
15 We're all set.

16 CHAIR CROWLEY: Thank you.

17 Okay. We will now move on to the vote.
18 Before we vote, let me restate the motion. The
19 motion on the floor is to accept public comment
20 number 1755.

21 If you're in favor of comment number 1755,
22 please rise.

23 All right. Thank you. You can sit down.

24 All those opposed, please rise.

25 All right. Thank you. Please sit down.

1 Motion passes.

2 Moving on, we are on -- let's now proceed
3 with the discussion on certified amending motion
4 number 70-85.

5 Microphone number three.

6 MR. DOLLAR: I'm Randy Daher with Siemens
7 representing American Circuit Breaker Manufacturers
8 Association, ACBMA, and I motion to accept CAM 70-
9 85, which is to reject second revision 7617.

10 UNIDENTIFIED PARTICIPANT: Second.

11 CHAIR CROWLEY: And we have a second.
12 Please proceed, Randy.

13 MR. DOLLAR: Thank you.

14 Okay. Obviously speaking in support of
15 CAM 7085, safety is being compromised by the actions
16 that have been taken. GFCI is for the branch
17 circuit and protects people including those who may
18 use and work on or around appliances. The
19 correlating committee had requested coordination
20 between code making panel two and code making panel
21 17 regarding the list of appliances referenced for
22 GFCI protection. After submission of companion
23 public comments, correlation did not occur. While
24 the public comment deleting the list from 210.8D
25 passed, the companion public comment, relocating

1 those appliances to 422.5 failed the CMP 17 ballot.

2 This was not an effort to expand GFCI
3 requirements but rather to continue the previously
4 existing requirements. Code making panel two
5 indicated in the committee statement code making
6 panel two reaffirms that it would like to maintain
7 the GFCI protection of the branch circuit and the
8 outlet for the appliances listed in 210.8D one
9 through 12, as a shock hazard can exist in these
10 installations as documented in CPSC data that was
11 used when CMP2 generated the items in this list.

12 GFCI requirements that existed previously
13 have now been removed by the actions in the second
14 revision. ACBMA supported this relocation of the
15 listed items to CMP17 up until the point where
16 safety was compromised. I ask you to support motion
17 70-85.

18 CHAIR CROWLEY: Thank you.

19 Larry, do you have any -- would you like
20 to offer the panels --

21 MR. AYER: I'd like to defer comment to
22 the chair of code making panel two.

23 MR. HUMPHREY: I'm David Humphrey. I
24 represent IAE. I am the chair of code making panel
25 two, and I rise in opposition to the motion on the

1 floor.

2 A task group was formed between the
3 members of CMP2 and CMP 17 to address the issues of
4 purview regarding the requirements for GFCI
5 protection for specific appliances located in
6 section 210.8 D and 422.5. A second revision 7617
7 was thoroughly discussed with input from the CMP2
8 task group members.

9 Second revision 7617 effectively relocates
10 the requirements for GFCI protection for specific
11 appliances to the purview of CMP 17. The public
12 comment associated with this second revision
13 achieved simple majority at the second draft meeting
14 in a 20 to zero vote at ballot.

15 As Mr. Dollar said -- I'm going to repeat
16 the panel statement. The following portion of the
17 committee statement for second revision 7617 is
18 significant regarding the intentions of code making
19 panel two, and that is CMP2 reaffirms that it would
20 like to maintain the GFCI protection of the branch
21 circuit and outlet for appliances listed in 210.8 D1
22 through 12, as a shock hazard can exist in these
23 installations as documented by Consumer Product
24 Safety Commission data that was used when CMP2
25 generated the items in that list.

1 Subsequently and to the consternation of
2 many CMP2 members, CMP 17 did remove many of the
3 appliances formerly listed in Section 210.8 D from
4 the list of appliances GFCI protection now found in
5 Section 422.5 A. Thank you.

6 CHAIR CROWLEY: Thank you.

7 Microphone number one.

8 MR. WATERS: Thank you, Mr. Chair.

9 My name is Keith Waters with Snyder
10 Electric, and I stand in support of the motion.

11 As both Mr. Dollar and Mr. Humphrey
12 stated, the intent of CMP2 was very straightforward
13 into following the requirements and suggestions from
14 the correlating committee, but while at the same
15 time wanting to maintain the GFCI protection of the
16 branch circuit that fed these appliances. Because
17 those appliances were not listed by Panel 17 in
18 422.5, it becomes apparent that they need to be
19 reinstated in 210.8 D or placed in 422.5, which we
20 will discuss later. Thank you.

21 CHAIR CROWLEY: Thank you.

22 Microphone number two.

23 MR. JACKSON: Yes, thank you Ryan Jackson
24 speaking on behalf of myself in opposition to the
25 motion.

1 As was indicated before, there was a task
2 group that was created at the behest of the
3 correlating committee, but the purpose of that task
4 group was to determine the correct location of these
5 requirements. If the appliance is the hazard, then
6 the rules belong in the appliance article. that was
7 agreed upon by the members of the task group.

8 Now we can agree or we can disagree about
9 whether or not all of these items should be an
10 Article 422 or not, but I'm not going to hear that
11 that's the wrong location that was decided upon. If
12 the appliance is the hazard, that belongs in the
13 appliance article. I would urge the members here
14 that if they have strong feelings and they don't
15 like what Panel 17 did in Article 422, I would
16 remind them that there is a CAM coming up in the
17 very near future where you'll have a chance to
18 address that issue.

19 By supporting this CAM, we're putting it
20 back in the location that it never belonged in the
21 first place. This is not a technical matter. This
22 is a correlating matter and a matter of purview.
23 This material should have never been in Article 210.
24 It always should have been in Article 422, which is
25 where it started, which is where it still is and

1 where it should continue to be. I urge opposition
2 to this motion. Thank you.

3 CHAIR CROWLEY: Thank you.

4 Microphone number three.

5 MR. DEMITROVICH: Thank you, Thomas de
6 Mitrovich with Eaton speaking on behalf of Eaton.

7 I rise to support the motion on the table.
8 The appliances that have been removed from 210.8 D,
9 we are asking to be placed back into 210.8 D. I am
10 on the other side of the table in the debate with
11 regard to whether or not it is appropriate in 210.8
12 D, for this is personnel protection. This is not
13 equipment protection. This is about protecting
14 personnel from the hazards of the use of
15 electricity.

16 Unfortunately, GFCI protection data --
17 GFCI protection is built on data. It's built on
18 data from the Consumer Product Safety Commission,
19 and code panel two, fortunately or unfortunately,
20 has exposure to that data and makes decisions based
21 on that.

22 To that end, I want to share with you some
23 information from the Consumer Product Safety
24 Commission reports which are available to anybody in
25 this room.

1 48-year-old female was taking clothes out
2 of the dryer, and there may have been something
3 metallic within the dryer causing her to be
4 electrocuted. She reports being stuck holding on
5 for approximately 20 minutes. Electrocution, right
6 ankle pain, subrogation of tooth.

7 8-year-old male was trying to get a toy
8 from behind the electric oven and was electrocuted
9 resulting in death.

10 7-year-old male was causing a ball --
11 chasing a ball behind the clothes dryer and touched
12 exposed wires. Ventricular fibrillation arrest,
13 electrical burns.

14 55-year-old female electrical shock
15 grabbing onto her electric stove.

16 27-year-old female patient states that she
17 touched her stove around 3 o'clock in the morning
18 and sustained electrical shock.

19 53-year-old male reports getting
20 electrocuted by his stove when he touched a fork to
21 a pan and a spoon to a pan of water. States made
22 his head spin, premature ventricular contractions,
23 electrical injury to an adult.

24 65-year-old male states was holding a
25 panhandle on the stove and touched the sink. Felt

1 electricity go through his body. Possible
2 electrocution injury -- and a word I can't
3 pronounce.

4 26-year-old female patient arrived for
5 evaluation after being shocked. She states she was
6 cleaning her oven when the light bulb fell out. She
7 was attempting to put it back in when the oven
8 shocked her. She states the shock went through her
9 right hand, up her arm, and made her left arm
10 tingle. Patient left before being seen. Thank you.

11 CHAIR CROWLEY: Thank you.

12 Is there any further discussion on the
13 motion? 70-85 to reject second revision number
14 7617?

15 Number two.

16 MR. LICHENSKI: Greg Lichenski from AHAM
17 speaking against the motion.

18 Very similar language as is proposed in
19 this motion is already in Chapter 4 of the 2026
20 draft. Code making panel two cannot copy language
21 under the purview of another code making panel,
22 change it, and then adopt that revised language in a
23 part of the standard under code making panel two's
24 control. If this is allowed to continue, it sets a
25 precedent of allowing code making panel two to copy,

1 paste, and revise any code language which discusses
2 a load in a branch circuit, even if that load is
3 under the purview of another code making panel.

4 Please do not help in setting this
5 precedent and vote against this motion. Thank you.

6 CHAIR CROWLEY: Thank you.

7 Is there any further discussion on the
8 motion 70-85 to reject second revision number 7617?

9 Keep popping up. Microphone number two.

10 MR. WEAVER: Thank you.

11 Mike Weaver representing Nika (phonetic),
12 code panel chair 17.

13 Undoubtedly, you've probably made a
14 decision on which way you want to go with this as
15 far as these appliances being in a section. I would
16 just ask that you respect that we're going to be
17 talking about this the very next CAM, and this is a
18 purview issue. These are 17s, appliances are 17s,
19 so let's not mess this up and put them back in two
20 where they don't belong. Thank you.

21 CHAIR CROWLEY: Thank you.

22 Is there any further discussion on 17-85?

23 Okay. Seeing none, Larry, would you like
24 an opportunity for any final comments?

25 MR. AYER: I'd like defer any final

1 comments to the chair of code making panel two.

2 MR. HUMPHREY: Nothing to further to
3 report.

4 CHAIR CROWLEY: Thank you.

5 I think we're ready to move on to the
6 vote, but before we vote, let me restate the motion.
7 The motion on the floor is to reject second revision
8 number 7617.

9 All those in favor of rejecting second
10 revision number 7617, please rise.

11 UNIDENTIFIED PARTICIPANT: Who are we
12 voting on?

13 CHAIR CROWLEY: You're voting on the green
14 right now, so if you're in favor of the green,
15 please rise.

16 Okay. Thank you.

17 All those opposed to the revision or are
18 in favor of the red, please rise.

19 Okay. All right. Thank you. Sit down.
20 Appreciate that.

21 Motion passes.

22 All right. I know we were said we are
23 going to stop at 4:30; however, however, CAM 70-93
24 is related to what we just discussed. So instead of
25 starting cold tomorrow, let's just take that one

1 last CAM, and we'll take care of it. So 70-93
2 certified amending motion.

3 Microphone number one.

4 MR. WATERS: Thank you, Mr. Chair.

5 My name is Keith Waters with Snyder
6 Electric and I move to accept public comment 1853.

7 UNIDENTIFIED PARTICIPANT: Second.

8 CHAIR CROWLEY: Second? I heard a second.
9 Thank you. Please proceed.

10 MR. WATERS: My name is Keith Waters with
11 Snyder Electric, and I support the motion. As we've
12 just talked about in the previous CAM, the original
13 decision and correlating committee and task groups
14 was to move the list of products from appliances
15 from 210.8 D to 422.5. The committee statement from
16 Panel 17 stated that the list of appliances was
17 modified to incorporate existing requirements in
18 210.8 D. However, the updated language did not
19 achieve the necessary votes on the electronic
20 ballot.

21 None of the negative ballots commented,
22 addressed any of the electrocutions that were
23 referenced in the original code panel statement or
24 that were addressed in this particular public
25 comment. And to not duplicate the list that is very

1 similar to what Mr. de Mitrovich did earlier, there
2 was a number of electrocution fatalities around
3 multiple appliances. So this motion should move
4 forward to maintain electrical safety and support
5 the majority of CMP 17's understanding of the need
6 to move these appliances. Thank you.

7 CHAIR CROWLEY: Thank you.

8 Larry, would you like to offer the panel's
9 position?

10 MR. AYER: I'd like to defer comment to
11 the chair of code making panel 17.

12 MR. WEAVER: Thank you.

13 My name is Mike Weaver. I'm the chair of
14 CMP 17. I represent Nika, and we oppose the motion.

15 Mr. Waters is mistaken when he asserts
16 that CMP 17 did not address the items listed in
17 public comment 1853. CMP 17 created second revision
18 8505 which mirrored PC 1853. Ultimately, this
19 failed ballot by not receiving the two thirds of
20 votes to pass. Public inputs were submitted to
21 expand the list in Article 422.5 to mirror those
22 found in 210.8 D which is the same request Mr.
23 Waters seeks in both PC 1853 and CAM 70-93.

24 During the first draft stage, CMP 17
25 created first revision 8871 for 422.5 which was

1 mainly editorial in nature. Those requests were
2 contemplated by CMP 17 and the subject of much
3 discussion. CMP 17 did not accept the requested
4 expansion because of insufficient technical
5 substantiation had been submitted to expand the
6 list.

7 Additionally, representatives for both UL
8 101 leakage current for utilization equipment and UL
9 9433 GFCIs as well as other industry stake holders
10 are engaged in ongoing discussions concerning GFCI
11 protection and appliance compatibility. A timeframe
12 for compatibility within these product standards has
13 not been established. FR 8871 passed ballot 16 to
14 zero.

15 During the second draft meeting, CMP 17
16 reviewed five public comments 1014, 1082, 1275,
17 1853, and 686, all of which sought to expand the
18 list in the same manner. Request of the first draft
19 stage. CMP 17 created second revision 8505 which
20 expanded the list in 422.5 B to include electric
21 ranges, wall ovens, wall mounted ovens, counter
22 mounted cooking units, clothes dryers, and microwave
23 ovens.

24 CMP 17's statement was the list of
25 appliances was modified to incorporate the existing

1 GFCI requirements in 210.8 and relocated here since
2 appliances are under the purview of Article 422.

3 This revision did not receive the required two
4 thirds majority to vote -- sorry, majority vote to
5 pass the ballot.

6 The following were concerns of CMP 17
7 members regarding this matter. Minimum requirements
8 for GFCIs need to be updated to minimize the
9 nuisance tripping and equipment compatibility. CMP
10 17 did not hear or see substantiation as to why CMP2
11 added these items to the list in 2023, and there was
12 lack of substantial lack of technical substantiation
13 for these items added.

14 Expansion of the list should not occur
15 until UL 943 has been updated, in particular with
16 regard to leakage current and high frequency issues
17 to address the viability of these currently
18 unresolved technical matters. Concerns about
19 interoperability of appliances and GFCI devices.
20 The list should not be expanded until you all 943
21 has been updated. Concerns about allowable leaking
22 --

23 CHAIR CROWLEY: Thank you. Thank you.

24 All right. We now -- with that, we'll now
25 open it for debate. Please provide your name,

1 affiliation, whether you're speaking for or against.

2 Microphone number three.

3 MR. DEMITROVICH: Thank you, Mr. Chair.

4 My name is Thomas de Mitrovich with Eaton speaking
5 in support of the motion on the table.

6 I was planning to read through more
7 consumer product safety commission data, but I will
8 save everybody the time because I believe we've sent
9 that message for the last motion, and I'm going to
10 save myself the emotional stress. But putting these
11 appliances in both locations is not a bad thing. It
12 gives the code panels, the correlating committee,
13 and standards counsel the ability to re-review and
14 take a look at purview. If they want to make a
15 purview move, that's fine, but the message that we,
16 in my opinion, want to send is that we don't want to
17 sacrifice safety for purview. Please support the
18 motion on the table. Thank you.

19 CHAIR CROWLEY: Thank you.

20 Microphone number two.

21 MR. JACKSON: Thank you.

22 Ryan Jackson speaking on behalf of myself
23 in opposition, and I want to remind everybody that
24 this particular CAM is really not an issue of
25 purview. I think that was more of the previous CAM.

1 This one was more of a technical discussion. Mr. de
2 Mitrovich gave us some tragic instances of
3 electrocutions. Nobody wants to see that.
4 Obviously, I've spent my entire adult life in the
5 electrical safety industry. It means as much to me
6 as it does to anyone in this room.

7 When we look at what this proposed change
8 does, it's really not that much. Most of the
9 incidents, if not all of the incidents, that Mr. de
10 Mitrovich just mentioned were probably already on
11 appliances or installations that would've required
12 GFCI protection via other sections of the code,
13 particularly 210.8 A or B.

14 What this expansion really does is it adds
15 hardwired ranges, wall-mounted ovens, counter
16 mounted cooking units, dryers and microwave ovens.
17 The cord and plug connected variety of those are by
18 their very definition already required to be GFCI
19 protected. The only one that you could debate falls
20 out of that would be cord and plug connected
21 microwave ovens.

22 But that begs an interesting question. I
23 want you to think for a minute because I thought a
24 lot about this. How many microwave ovens are
25 installed in the United States of America? There

1 has to be 2 billion with a B. How many incidents
2 are there? Now, I understand that one loss of life
3 is tragic and too much, but we still need to have
4 some matter of practicality in this. We cannot
5 change a rule based on a failure rate of one per 500
6 million.

7 If there are 2 billion installed products
8 and we have a couple of incidents, those are tragic
9 and I'm not -- I'm obviously not trying to dismiss
10 those, but if the automobile industry worked this
11 way, cars would not be legal. If the aviation
12 industry worked this way, we would not have
13 airplanes.

14 We have to establish some level of
15 acceptable risk, and when we have 2 billion
16 installed products, if this is a real hazard, there
17 should be some pretty significant technical
18 substantiation to push this forward. I don't think
19 we can keep on changing codes based on a failure
20 rate of one per 100 million or one per 500 million.
21 As they say in the south, that dog don't hunt. I
22 ask for your support in opposing this motion. Thank
23 you very much.

24 CHAIR CROWLEY: Thank you.

25 Microphone number three.

1 MR. DEMITROVICH: Thank you, Mr. Chair.

2 Thomas de Mitrovich with Eaton speaking in
3 support of the motion on the table on the floor.

4 I just want to add some clarity. GFCI
5 requirements have considerably changed over the last
6 three or four cycles. I don't think anybody in this
7 room is ignorant to the fact that we went from just
8 15 and 20-amp circuits. We've expanded that in
9 residential dwelling units to up to 60 or 50 amps,
10 and in other than dwelling units and -- for three
11 phase circuits, we went up upwards of 100 amps three
12 phase. So we are experiencing the expansion, and
13 the results of that expansion, good, bad or
14 indifferent, with regard to compatibility concerns,
15 which we've all had the debate and discussions about
16 and protection.

17 Those appliances that we've read from, and
18 I do not plan to go back to the CPSC data, we have a
19 lot an abundance of information. So I urge you to
20 support the motion on the floor. Thank you.

21 CHAIR CROWLEY: Thank you.

22 Any others?

23 Here we go. Microphone number two.

24 MR. LICHENSKI: Greg Lichenski from AHAM
25 speaking against the motion.

1 Due to updates in 210.8A, GFCIs are now
2 required for 120 and 240-volt receptacles because
3 most of these products are cord and plug connected.
4 In most cases, these products are already required
5 to be on a GFCI. However, an alternative path is
6 needed in cases of nuisance tripping.

7 A recent independent UL study shows GFCIs
8 tripping on safe appliances with modern components.
9 In addition, electricians report nuisance tripping.
10 For example, Massachusetts set up an open reporting
11 platform for GFCI nuisance tripping a couple years
12 ago. That platform now has 5,196 reports of GFCI
13 nuisance tripping, many of them on the appliances at
14 issue in this motion.

15 There must be options besides purchase and
16 installation of a class A GFCI. One option to
17 prevent nuisance tripping is allow hard wiring of
18 these appliances where appropriate on a non GFCI
19 breaker. Hard wiring increases the chance of
20 installation by a qualified electrician and provides
21 a permanently connected grounding conductor that can
22 serve as a path of least resistance in case of
23 electrical faults.

24 Nuisance tripping needs to be addressed
25 proactively, not reactively. When a consumer reacts

1 to nuisance tripping in the home, they get creative.
2 Consumers connect home appliances via extension
3 cords to non GFCI circuits or misuse appliances such
4 as use of a small hot plate to cook a holiday meal
5 because the electric range is nuisance tripping.

6 The long-term solution is updates to UL
7 standards including adding requirements to UL 943,
8 the standard covering GFCIs. There is good work
9 being done on a new type of GFCI called HF, which
10 will be less prone to nuisance tripping.
11 Unfortunately, this work is not yet published, and
12 when it is published, it will only be optional, not
13 required.

14 According to a staff opinion letter from
15 Consumer Product Safety Commission, this HF rating
16 should be required. GFCIs work well in locations
17 like bathrooms and kitchen countertops where the
18 loads are still fairly simple, things like hair
19 dryers and toasters.

20 I hope GFCIs can eventually provide the
21 same wide-ranging benefit for larger, constantly
22 regulated, more complex appliances. Unfortunately,
23 more work is needed to get there. Please vote
24 against GFCI expansion in Chapter 4 until the
25 standard for GFCIs is updated with modern

1 requirements. A GFCI that works as intended should
2 not be an optional premium feature that may or may
3 not be installed. Please vote against this motion.
4 Thank you.

5 CHAIR CROWLEY:

6 Thank you. Microphone number one.

7 MR. HUMPHREY: I'm David Humphrey,
8 representing myself. We've heard the term nuisance
9 tripping bandied about greatly today, and I contend
10 it's a more accurate description to say unwanted
11 tripping, but we heard about 5,100 trips in the
12 state of Massachusetts. My question is were they
13 investigated? Do we know that those were somehow a
14 defective product, a defective GFCI product, or were
15 they simply the device doing its job detecting
16 currents in excess of the milliamp here rating
17 that's considered safe?

18 So don't assume that every time a breaker
19 trips, it's some sort of error going on. The
20 product may be just doing its intended function.
21 Thank you.

22 CHAIR CROWLEY: Thank you.

23 Microphone number three.

24 MR. DOLLAR: Yes, Randy dollar with
25 Siemens speaking in support of the motion.

1 I want to address two points that were
2 made actually. I don't think we have six microwaves
3 per person in the United States, so I think we need
4 to deal with real statistics. And when we look at
5 the Massachusetts test data, and I definitely
6 support what David just said about the unwanted
7 tripping as opposed to nuisance tripping, we did
8 investigate many of those unwanted tripping events.
9 What we found was in the worst case that I can
10 actually remember, we had 60 milliamps of leakage
11 current at 60 hertz to the ground conductor. That
12 is an extreme amount of current, and that is fatal
13 if it goes through a person. That's a problem.

14 The other aspect that I thought was very
15 important is I believe the number was 78 percent of
16 the ranges that tripped in Massachusetts were
17 attributed to one manufacturer. And of that one
18 manufacturer, I think it was 73 or 74 percent of
19 those were attributed to two heating elements that
20 were used in those appliances. So I don't think we
21 have a widespread unwanted tripping issue. I think
22 we have a problem with some appliances that are
23 dumping current onto the ground conductor. Thank
24 you very much.

25 CHAIR CROWLEY: Thank you.

1 Microphone number two.

2 MR. JACKSON: Yes, Ryan Jackson speaking
3 for myself and once again in opposition to the
4 motion.

5 As a point of clarification, I don't think
6 it was ever stated that every American owned six
7 microwave ovens. I think the point was that every
8 house in the United States probably has one, if not
9 two or perhaps three. And considering that I live
10 on the road about 150 days of the year, every single
11 hotel room that I stay in has a microwave almost
12 without exception. Every restaurant that I eat at
13 when I'm on the road has at least one microwave
14 without exception, and every fast-food restaurant
15 that I try not to eat at on the road has at least
16 one microwave oven as well. I don't think the
17 number is really that far out of whack. Thank you.

18 CHAIR CROWLEY: Thank you.

19 Microphone number one.

20 MR. MCCLEARY: Mr. Chairman. Shane
21 McLeary, Bail Alarm Company, and I rise the call the
22 question.

23 CHAIR CROWLEY: Okay. We do have a
24 second. I notice we have a number of people
25 remaining at the microphones waiting to speak, but

1 we will proceed on the call the question.

2 All those in favor of calling the
3 question, please rise.

4 Thank you. You could sit down.

5 All those in favor of continuing debate,
6 please rise.

7 Okay. We will be moving on to the vote.

8 Okay. Before we vote, let me restate the
9 motion. The motion on the floor is to accept public
10 comment 1853, which will be the texts that are on
11 page 83 of the report of the motions committee.

12 All those in favor of the vote -- of the
13 motion, please rise.

14 All right. Thank you. Please sit down.

15 All those opposed to the motion, please
16 rise.

17 Okay. The motion passes. Thank you.

18 All right. As we said before, this is the
19 last CAM for the day. We will be recessing until
20 8:00 a.m. tomorrow morning. We will be picking up
21 with CAM 7-48. So thank you very much for your
22 attention today. We will see you tomorrow.

23 Also, please put your voting devices in
24 the baskets on the way out, and we will open the
25 doors at 7:00 a.m. tomorrow morning. Hopefully,

1 we'll have our voting system up and running then.

2 Thank you very much.

3 See you tomorrow.

4 (WHEREUPON, the NFPA TECHNICAL MEETING
5 concluded.)

CERTIFICATE

I, Lindsay Brown, do hereby certify that the proceeding named herein was professionally transcribed on the date set forth in the certificate herein; that I transcribed all testimony adduced and other oral proceedings had in the foregoing matter; and that the foregoing transcript pages constitute a full, true, and correct record of such testimony adduced and oral proceeding had and of the whole thereof.

IN WITNESS HEREOF, I have hereunto set my hand this 18th day of July, 2025.

Lindsay Brown

Lindsay Brown

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