COMMONWEALTH OF MASSACHUSETTS

STANDARDS COUNCIL MEETING

BEING HELD AT
BOSTON HYATT REGENCY
ONE AVENUE DELAFAYETTE
BOSTON, MASSACHUSETTS

Wednesday, August 10, 2022
Commencing at 10:02 a.m.
APPEARANCES

Standards Council:
James Golinveaux, Chair
Kenneth Bush, Member of Council
Michael Crowley, Member of Council
Jeffrey Foisel, Member of Council
Richard Gallagher, Member of Council
Michael Johnston, Member of Council
David Klein, Member of Council
John Kovacik, Member of Council
Randy Krause, Member of Council
James Quiter, Member of Council
Rodger Reiswig, Member of Council
Catherine Stashak, Member of Council

NFPA Staff:
Dawn Michele Bellis
Suzanne Gallagher
Christian Dubay
Barry Chase
Chad Duffy
Laura Moreno
Tracy Vecchiarelli
Patrick Bakaj
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<td>13</td>
<td>Speakers:</td>
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<td>14</td>
<td>Ted Jablkowski</td>
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<td>17</td>
<td>Frederick Hartwell</td>
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<td>Chuck Mello</td>
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<td>19</td>
<td>Reuben Clark</td>
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<td>20</td>
<td>Douglas Dorr</td>
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<td>21</td>
<td>Peter Graser</td>
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<td>David Watson</td>
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Nicole Cassels
Heath Dehn
Amy Greenfield
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Corey Hannah
Erik Hohengasser

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Speakers (cont'd)
- Chris Wingate
- James Moellmann
- Greg Woyczynski
- Randy Dollar
- William Koffel
- Mary Koban
- Ed Lehr

Guests:
- Jack Lyons
- Bill Timmons
- Amy Cronin
- Mark Early
- John Hipchen
- Ellen Aldin
- Aaron Bowling
- Ernest Gallo
- Randy Hunter

Court Reporter:
- Lauren M. Buzzerio, CSR
<table>
<thead>
<tr>
<th>Index</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Golinveaux</td>
<td>8</td>
</tr>
<tr>
<td>Hearing on 22-8-6-1</td>
<td>15</td>
</tr>
<tr>
<td>Mr. Jablkowski</td>
<td>16</td>
</tr>
<tr>
<td>Questions from Council</td>
<td>21</td>
</tr>
<tr>
<td>Summary by Mr. Jablkowski</td>
<td>27</td>
</tr>
<tr>
<td>Hearing on 22-8-5-K-1</td>
<td>31</td>
</tr>
<tr>
<td>Mr. Andre</td>
<td>32</td>
</tr>
<tr>
<td>Ms. Hunter</td>
<td>39</td>
</tr>
<tr>
<td>Questions from Council</td>
<td>41</td>
</tr>
<tr>
<td>Summary by Mr. Andre</td>
<td>47</td>
</tr>
<tr>
<td>Summary by Ms. Hunter</td>
<td>49</td>
</tr>
<tr>
<td>Hearing on 22-8-5-W-1</td>
<td>50</td>
</tr>
<tr>
<td>Mr. Hartwell</td>
<td>53</td>
</tr>
<tr>
<td>Mr. Clark</td>
<td>55</td>
</tr>
<tr>
<td>Questions from Council</td>
<td>60</td>
</tr>
<tr>
<td>Summary by Mr. Hartwell</td>
<td>81</td>
</tr>
<tr>
<td>Hearing on 22-8-5-Y</td>
<td>85</td>
</tr>
<tr>
<td>Mr. Graser</td>
<td>87</td>
</tr>
<tr>
<td>Mr. Keeler</td>
<td>92</td>
</tr>
<tr>
<td>Ms. Hunter</td>
<td>97</td>
</tr>
<tr>
<td>Questions from Council</td>
<td>99</td>
</tr>
<tr>
<td>Summary by Mr. Graser</td>
<td>135</td>
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<td>1</td>
<td>Summary by Mr. Keeler</td>
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<td>2</td>
<td>Summary by Ms. Hunter</td>
</tr>
<tr>
<td>3</td>
<td>Hearing on 22-8-5-AA-1</td>
</tr>
<tr>
<td>4</td>
<td>Hearing on 22-8-5-J</td>
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<td>5</td>
<td>Mr. Graser</td>
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<td>6</td>
<td>Questions from Council</td>
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<td>7</td>
<td>Summary from Mr. Graser</td>
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<td>8</td>
<td>Hearing on 22-8-5-P</td>
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<td>9</td>
<td>Mr. Wingate</td>
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<td>10</td>
<td>Mr. Moellmann</td>
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<td>11</td>
<td>Questions from Council</td>
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<td>12</td>
<td>Summary by Mr. Moellmann</td>
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<td>13</td>
<td>Hearing on 22-8-5-O</td>
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<td>Mr. Moellmann</td>
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<td>Summary by Mr. Wingate</td>
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<td>Hearing on 22-8-5-Q</td>
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<td>Summary by Mr. Wingate</td>
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<td>Hearing on 22-8-5-R</td>
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<td>2</td>
<td>Questions from Council</td>
</tr>
<tr>
<td>3</td>
<td>Summary by Mr. Woyczynski</td>
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<td>Hearing on 22-8-5-S</td>
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<td>6</td>
<td>Mr. Dollar</td>
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<td>Mr. Manche</td>
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<td>Questions from Council</td>
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<td>9</td>
<td>Summary by Mr. Woyczynski</td>
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<td>10</td>
<td>Summary by Mr. Manche</td>
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<td>11</td>
<td>Hearing on 22-8-16-D</td>
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<td>12</td>
<td>Mr. Koffel</td>
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<td>13</td>
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<td>Summary by Mr. Koffel</td>
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<td>17</td>
<td>Summary by Mr. Lehr</td>
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MR. GOLINVEAUX: I'd like to start this off by saying good morning. My name is James Golinveaux. It is my distinct pleasure to serve as the chair of the NFPA Standards Council and welcome you. I'm going to call this hearing to order. In a moment, I'll have everyone introduce themselves by stating their name and their affiliation. But before we do that, I want to remind everyone that we have a stenographer in the room today who is recording these hearings. So from this standpoint, it is important that each of you, when you make your remarks, that you state your name and the affiliation so that the stenographer may accurately capture the information for the record. In addition, to those who will be speaking, if you haven't already done so, forward your name as you wish it to appear in the record as well as your affiliation to Mary Maynard at mmaynard@NFPA.org so that we can spell your name correctly in the record.

Appeals hearings are scheduled for today, August 10, 2022. And the plan is to move for one hearing to the next with some
breaks throughout the day as necessary. If we cannot get through all the hearings today, we will start again tomorrow morning, August 11th, and continue until we conclude the hearings. We'll start with the introduction of council members, followed by the NFPA staff. And, finally, I will recognize the appellants that are planning to speak to a specific appeal to introduce themselves. Following breaks, I will go through this introduction again just for those who have joined since starting the appeals this morning. If you're merely attending as a guest and not speaking on any items, please be certain to sign in with Mary Maynard at the table outside the hearing room.

So I'll begin the introductions with Mr. Quiter.

MR. QUITER: James Quiter, member of council.

MR. GALLAGHER: Richard Gallagher, member of council.

MR. CROWLEY: Michael Crowley, member of council.

MR. KOVACIK: John Kovacik, member of council.
council.

MR. REISWIG: Rodger Reiswig, member of council.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff.

MS. BELLIS: Dawn Michele Bellis, NFPA staff.

MR. FOISEL: Jeff Foisel, member of council.

MR. KRAUSE: Randy Krause, member of council.

MR. KLEIN: David Klein, member of council.

MS. STASHAK: Cathy Stashak, member of council.

MR. BUSH: Kenneth Bush, member of council.

MR. GOLINVEAUX: And we'll move to Mr. Dubay.

MR. DUBAY: Christian Dubay, NFPA staff.

MR. CHASE: Barry Chase, NFPA staff.

MR. DUFFY: Chad Duffy, NFPA staff.

MS. VECCHIARELLI: Tracy Vecchiarelli,
NFPA staff.

MR. BAKAJ: Patrick Bakaj, NFPA staff.

MR. BARKER: Matt Barker, NFPA staff.

MS. CASSELS: Nicole Cassels, NFPA staff.

MR. DEHN: Heath Dehn, NFPA staff.

MS. GREENFIELD: Amy Greenfield, NFPA staff.

MR. HOLLAND: Ken Holland, NFPA staff.

MR. HANNAH: Corey Hannah, NFPA staff.

MR. HOHENGASSER: Erik Hohengasser, NFPA staff.

MR. SARGENT: Jeff Sargent, NFPA staff.

MS. SISCO: Jennifer Sisco, NFPA staff.

MR. GOLINVEAUX: Thank you very much. Now I'm going to move to the guests. I will start with the front row and we'll move --

MR. JABLKOWSKI: Ted Jablkowski of Five North American Combustion. Member of NFPA 86.

MR. WATSON: Dave Watson with Southwire.
MR. KEELER: Tim Keller, Mayer Brown law firm.


MR. GALLO: Ernie Gallo, Ericsson.

MR. BOWMER: Trevor Bowmer, Bunya Telecom Consulting.

MR. MOELLMANN: James Moellmann, Maxivolt.

MR. GOLINVEAUX: I'm going to interrupt just for one quick second. Make sure you project your voices. The stenographer is way in this corner. So if I'm having a tough time hearing you, it must be difficult over there so.

MR. WINGATE: Chris Wingate, Maxivolt.

MR. ANDRE: Joseph Andre. I'm here representing myself.

MR. MELLO: Chuck Mello, cdcmello Consulting.

MS. CRONIN: Amy Cronin, Strategic Code Solutions.

MR. EARLY: Mark Early, Alumni Code Consulting Group.

MR. GRASER: Peter Graser, American
Bimetallic Association and Copperweld
Bimetallcs.

MR. TIMMOMS: Bill Timmons, Electrical Wiring Systems.

MR. HIPCHEN: John Hipchen, Copper Development Association.

MR. HARTWELL: Frederic Hartwell. I'm representing myself.

MR. CLARK: Reuben Clark with CMI.

MR. LEHR: Ed Lehr, representing ACCA.

MR. DOLLAR: Randy Dollar, Siemens.

MR. BOWLING: Aaron Bowling, Arnold & Porter on behalf of Cerrowire.

MS. HUNTER: Christel Hunter, Cerrowire.

MR. HUNTER: Randy Hunter, guest.

MR. LYONS: Jack Lyons, NEMA.

MR. WILLIAMS: David Williams, International Association of Electrical Inspectors.

MR. DORR: Doug Dorr with the Electric Power Research Institute.


MR. MANCHE: Alan Manche, Schneider Electric.

MR. GOLINVEAUX: Okay. Has everyone been recognized in the room?

UNIDENTIFIED SPEAKER: Yes.

MR. GOLINVEAUX: All right. From a process standpoint, the general approach we will take today is to allow ten minutes for each side to make any opening remarks. And then we'll open the floor to questions from council members. For those of you who have requested and been granted additional time for opening remarks, those approvals will be honored. Please wait me to recognize you before speaking to ensure that all comments and questions are heard for accurate recording. Once all questions are addressed and satisfied by council, we'll move to closing remarks. Five minutes have been allocated for closing remarks for each side. Following closing remarks, the hearing will conclude.

Does anyone have any questions at that
HEARING ON 22-8-6-1

MR. GOLINVEAUX: So the first hearing, this hearing is related to agenda item number 22-8-6-1, regarding text recommended by the technical committee on NFPA 86, Section 5-5.3.1. Again, on NFPA 86. And this is CAM 86-6. Who's going to be speaking in favor of the motion? Please take a seat at the front of the table. If you're supporting the motion, you will be on my right on the left-hand side. If you're speaking representing the committee or against the motion, you'll be on my left. Do we have Mike Grande in the audience? How about John Olsen? And then Ted you're already representing the committee. And I have nobody to speak -- okay. I'm sorry.

So before I get going, are there any members of council that will be recusing themselves? Mr. Gallagher.

MR. GALLAGHER: Richard Gallagher, member of council. For the record, I'm recusing myself from this agenda item and will not participate as a member of the Standards
Council on the hearing, deliberations, or
voting on this matter.

MR. GOLINVEAUX: Thank you. And I
just need a quick pause. I'm trying to find
the appellant. So without the appellant being
here, I'll go ahead and call for -- Ted, for
you to read into the record your statement in
regards to this CAM for this motion.

MR. JABLKWOSKI: Yes. I'll be pleased
to. My name is Ted Jablkowski. I work for
Five North American Combustion, and I'm a
member of the NFPA 86 technical committee. On
7/25, I submitted a brief in opposition to the
appeal for CAM 86-6. In it I stated that in
the prior review period that this was a
carryover item that was rejected but held. And
so discussion of, I think it was PI-30 at the
time, became on the agenda for the current
renewal cycle for NFPA 86. From it first
revision 69 was created and excerpts from that
are included, which include direct changes in
the clause that is under appeal.

In the second draft meeting, public
comment 17 was discussed by the technical
committee and a task group was assigned by the technical committee. And in the second draft meeting, the task group brought their report on this particular item. After this, the item was discussed by the technical committee and action was taken to make further changes to the 5.3.1.

And so my belief is that the process was clearly followed, that there was ample notification to the public of the actions of the technical committee on this particular item. Our deliberations were dealing with equivalent strength which was very difficult. In fact, it was impossible for the committee to come to terms with it to be able to define it better. And, again, I didn't think the change that we made was contrary to the work of any particular organization. It wasn't intended to harm any particular manufacturer or process in the industry. In fact, it was really based upon safety. And over the years there's been a number of carveouts in this particular requirement for explosion relief. And in my brief, I recall the very strong opinions of Fred Jensen who was a long-term member of our
committee from Jensen Oven Company. And he shared a number of photos over the years to many cycles with the committee of explosions on Class A furnaces. He was a fervent advocate in explosion relief for those applications and felt that no matter what requirements there were for the combustion system on an oven or a furnace, that there was still substantial risk to the end user overloading the flammable solvents in these processes and/or reducing the safety ventilation or both. And he was a firm believer by his actions and testimony that explosion relief was the last line of defense on these particular applications to prevent loss of life and loss of equipment.

So the committee has been struggling for quite a while with this 3/16-inch shell carveout that was, in my interpretation, really intended to be carveout for Class B furnaces that didn't have any combustibles being processed except for the fuel that was being used in the burner system, which, of course, has a number of safety requirements and layers of protection to mitigate any explosive
hazards.

So in research for this appeal, because I certainly respect the opinions of other committee members in the industry, I looked back over the records and I found in 2003 one of our most distinguished members, Al Underuse (phonetic) of A. Finkl and Company, now deceased. He had submitted a public input on this very topic. I gave you an excerpt of it in my brief. And in it he substantiated a calculation for equivalent strength. Much to my surprise in this research, his input was rejected. And it was rejected because the practice of not allowing explosion relief was based on the use of heavy refractors, except in the proposal with the extended elimination of explosions relief to those that did not use refractory liners. And so, to me, this was clear evidence of the intention of the committee, at least back in 2003, that the 3/16 shell thickness and the equivalent strength in construction was really intended for Class B furnaces that would be built with heavy steel walls, refractory linings, and buckstays or
support beams to hold all of that structure together. And yet it was rejected because of that.

And so when I looked at this claim, the NITMAM and CAM that resulted, I didn't find any new information, except the fact that the particular submitter said that they have been using this 3/16 shell construction on, I presume, Class A furnaces that handled flammable materials with good success. But, again, we couldn't find -- as a committee, we couldn't find no basis for this. And we tried to find equivalent strength and couldn't do it. Because 86 covers a very wide range of ovens and furnaces. And it's constantly evolving to allow for new applications and new technologies. New technologies that can increase safety and certainly in furnaces and oven construction and materials. As an example, we sometimes see furnaces, Class B furnaces, that are built with the expanded metal shelves and fiber liner. There's no 3/16-inch plate that would be in keeping with the carveout.
So my feeling is that the committee acted appropriately with due notification to the public through all of its deliberations and meetings. And I hope that you can find no reason to allow this appeal, especially in light of the fact that there is TIA already filed with a due date, a ballot due date, of August 17th. And this essentially gives the technical committee another chance to consider the input of the submitter of this CAM.

MR. GOLINVEAUX: Okay. Thank you very much. Just for the record, Mr. Grande did not sign and Mr. Olsen had a family emergency as the reason even though they had requested the hearing. So I will open this up for questions from council. It's pretty much for Mr. Jablkowski. I'm sorry if I mispronounced your name. If he can answer further questions that you may have relative to the written submittal that was given to us maybe that he could answer for us. So I'll open it up to questions from council. Go ahead.

MR. FOISEL: Jeff Foisel, member of council. Just one quick question. After the
first draft when the task group convened for looking at this, what was the reasons for that task group to be convened?

MR. JABLKOWSKI: Again, at the time, the discussion was on trying to address the PI on the equivalent strength. And the committee didn't know how to find equivalent strength. Because there's got to be some scientific basis for that. And the task group's report was really inconclusive, saying that they could not develop language for equivalent strength.

And so as in other times in the past, as an example, the committee once deliberated long and hard over crafting language for pulse-fired systems, which were very prominent in Europe and started to be prominent in the United States. And after many, many task group meetings and language crafted and brought back to the committee about pulse firing -- pulse firing is where burners can turn on and off in a programed cycle -- the language didn't hold up to scrutiny. Because no matter how detailed that language was to try to define pulse firing -- and it's not defined in EN 746-2 with
any clarity -- someone in the committee said, well, what if I only have one pulse a day or one pulse a week or one pulse a year? Why is it safe to be able to bring these burners back on when my chamber is below auto ignition temperature? What am I really trying to safeguard here by crafting language? And so we deliberated on that input and said what we were really trying to do -- to define was language that would prove minimum combustion airflow during this period that the burners were off, all the burners would be off. To define what kind of leakage we could have in the safety shutoff valves. How many safety shutoff valves there should be. What's the cycle time reading for safety shutoff valves that are being used. And what's the life -- rated life span for those safety shutoff values.

So in the end, we didn't craft any language that deals with pulse firing. But we did change a lot of language that dealt with minimum combustion airflow interlock with safety shutoff valve leakage as referenced in the annex material to requirements for safety
shutoff valve cycle duty and cycle life in the 
standard and for replacing those safety shutoff 
valves before their life was reached. So, to 
me, this was -- this was action on employee 
relief that was quite in keeping with prior 
deliberations that I've experienced on NFPA 86.

MR. GOLINVEAUX: Mr. Quiter.

MR. QUITER: Jim Quiter, member of 
council. I presume you've read the appeal that 
was put in. And I have two questions that 
maybe you can help me understand a bit better. 
Once is about the public comment was not -- did 
not specifically identify removal of the 
language and, therefore, took the industry by 
surprise is basically what it says. And the 
second is the description of the safety hazard 
that this causes, which is in the -- I don't 
remember what page number it's on. But it 
talks about that this creates a safety hazard 
by removing the exception. And I wondered if 
you could address both of those.

MR. JABLKOWSKI: Well, I tried to 
address the first one already. So the 
committee had a history. They had this Section
5.3.1 open as they rejected but hold from the prior renewal cycle. They acted upon it in the first draft. There was a first revision created based upon this topic. And, ultimately, when they could not come to grips with being able to define equivalent strength construction, decided what are we really trying to accomplish by this language and chose to fix it in the manner that they did.

With respect to creating a safety hazard, I for one never thought of this 3/16-inch material carveout to ever be used on a Class A furnace handling flammable materials. So I don't -- I don't know that there is a safety hazard. Perhaps there is a safety hazard in those furnaces not having explosion relief. I can't answer that. When you bottle something up really strong, you know, with additional material, are you indeed creating another hazard? This is what the committee has been struggling with, to say what is this language really trying to accomplish. And my belief, again, was especially based upon the input from Al Underuse and the action of the
committee at the time, saying that it was all about heavy construction. That was what the carveout was intended for in my opinion.

MR. GOLINVEAUX: All right. Thank you. James Golinveaux, member of council. I have a question for you. You mentioned TIA with a voting deadline of August 17th. And in your opinion, do you think that it covers the issue of this appellant as well?

MR. JABLKOWSKI: Yes, I do. The TIA essentially proposes new language that allows some of the revision -- revised language that the committee had acted upon already to stay in. But to introduce the carveout of 3/16 construction for -- essentially for a Class A furnace, any category Class A furnace. So it's a little different than reverting back to the old language. And it remains to be seen how the technical committee will act on the TIA.

MR. GOLINVEAUX: Thank you.

Any there further questions?

MR. BUSH: Thank you, Mr. Chair.

Kenneth Bush, member of council. Part of the appeal states that the public comment that was
submitted did not specially identify certain language in the section of the code and that change was unexpected by the public and the industry. Can you tell me whether there was any consideration that that information that was introduced to the public comment was considered as new business?

MR. JABLKOWSKI: No, there was not. In fact, I believe our staff liaison did not point out any particular process issue. 5.3.1 was open. It was open from the very start of this renewal cycle. So my understanding is once an article is open, it can be changed in any fashion.

MR. BUSH: Thank you.

MR. GOLINVEAUX: Okay. Are there any further questions from council? Seeing none, I'm going to give you just a brief summary -- there hasn't been a -- other than the written record for the appellant that council will review plus your testimony today. But I'll give you to summarize your argument and we'll conclude the hearing.

MR. JABLKOWSKI: I appreciate that.
And I need just a minute to do so. I believe that the folks at the technical committee in every cycle that I've been part of is to continually improve the standard. How many times have we seen in the substantiation adding clarity that's no longer allowed in the committee statement which is now a term for that. Safety is paramount. But clarity and less ambiguity is really important to all of the users of the standard. Sometimes we're surprised as a committee to debate certain items, certain interpretations of our own language. And we choose to try to correct that either with the mandatory text or with annex material. And we always need to allow for evolving technologies that can be used to increase safety. And another example that I'd like to share with you is when safety instrumented systems were first being talked about in the U.S. under ISA 84.01 and in conjunction then with IEC's 61511 and 61508. Well, we had no provision in 86 to recognize safety instrumented systems. And the people that work with safety instrumented systems
primarily in the petrochemical industry, the chemical industry, the refining industry and so forth, they thought that our cookbook approach, and that's what they referred to NFPA 86 as, as a cookbook, was not as safe as a safety instrument system, which required an analysis of every risk that would be imaginable. And so the committee struggled with this as well and found a way to qualify the use of ISA 84 and ISA 61511 and 61508 as an alternate to the prescribed methods for implementing a burner management system in NFPA 86.

And so the committee, in my mind, has acted appropriately. I ask that you respect the work of the committee. I don't believe that we did not follow in the process. We're certainly not looking to surprise the industry. We never are. And that you vote to deny this appeal and allow the technical committee to take action on the TIA that's pending. And I thank you for your time and for your service to the safety in our country.

MR. GOLINVEAUX: Thank you. As we conclude the hearing, let me inform as to what
happens next. The council will deliberate and reach its decision in executive session. Once the decision is made, that decision, including background of any other information council believes relevant will be prepared by NFPA staff and published by the secretary of the Standards Council on the Standards Council web page, www.NFPA.org/SC2022 and in accordance with the regulations the development of the NFPA standards.

Additionally, the decision will be sent to the appellants and to the chair of the responsible committees directly. The official opinion and decision of council is that as published by the secretary and no other communication shall be considered the council's decision or position. Any questions regarding the decision should be addressed with the secretary.

On behalf of the NFPA Standards Council, I'd like to thank all of those who participated in today's appeal hearing. Your involvement, as well as the stakeholders', is important to the NFPA standards development.
process. This hearing is now ended. Thank you.

MR. JABLKOWSKI: Thank you very much.

HEARING ON 22-8-5-K-1

MR. GOLINVEAUX: We'll move directly into the next hearing. This is hearing related to agenda item number 22-8-5-K-1. This is in regards to NFPA 70, Section 334.12(A), CAM 70-63. And who are going to be my speakers for this motion? Okay. Please take your seat.

Okay. So with this, I'm going to be asking if there any recusals of council members on this agenda item?

MR. REISWIG: Rodger Reiswig, member of council. For the record, I am recusing myself on this agenda item, and I will not be participating as a member of the Standards Council in the hearing, deliberation, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair. John Kovacik, member of council. For the record, I am recusing myself on this agenda item, and I will not participate as a member of the Standards Council in the hearing,
deliberations, or voting on this matter.

MR. GOLINVEAUX: Okay. And just an
introduction for those who have sat at the
table here.

MR. ANDRE: Joseph Andre. I prefer
Joe. I'm here representing myself.

MS. HUNTER: And Chris Hunter with
Cerrowire.

MR. GOLINVEAUX: Okay. Very good.
Mr. Andre, please begin by introducing yourself
and proceed with your opening statement in
support of your appeal.

MR. ANDRE: Thank you, Mr. Chairman.
Thank you, Standards Council. My name is
Joseph Andre. I am here to appeal the vote by
the technical panel of Code Panel 6 with the
NFPA 70 on CAM 70-63. The first thing I would
like to do is to dispel one assertion that has
been made during this on my appeal is that it's
a commercial interest. I'm here representing
myself. I am an independent consultant. I
have consulted for a number of organizations,
one of which does -- is an association that
manufactures products that are related to
wiring methods, The Steel Tube Institute. I am not here representing them. They have discussed this matter. They have concluded that there is little to no impact to them on this. Wood frame buildings are not their forte.

So I wanted to dispel any notion that there is a commercial interest driving me being here. I've been a member of NFPA for 30-some-odd years. I've been in the electrical industry for 51. And I've been an active participant in code development for at least 25. I'm here because I'm concerned over how we can get to a certain place in the NFPA process.

To that I would point out that prior to the 2002 NEC, NM cable was limited to three stories above the grade. Period. The Standards Council in 2001 acted favorably on an appeal to raise that or to change that to Type III, IV, and V construction. There was a long dissertation about that process from the Standards Council explaining its position. And one of the more pertinent statements was that this will effectively give a rise to the NM
cable allowance to four stories non-sprinkled and five stories sprinkled. That was the intent -- that was the stated intent of the Standards Council. And the industry accepted that and lived with it for two decades. The words are unchanged in the NEC from 2002 to 2023 now, assuming that it goes as submitted.

The problem I have is that after the 2020 edition of NEC has gone through its whole process, the public input stage, the comment stage, the deliberation stage, the technical meeting stage, it was still four stories non-sprinkled and five stories sprinkled. Then the two building codes in effect in this country within weeks of each other completed their process several months after the NEC was actually issued by the Standards Council, this was in 2020, in which they changed type IV construction to allow under certain conditions up to 18 stories if you're under the International Building Code, 24 stories if you're under NFPA 5000. That was never anticipated in the Standards Council decision back in 2001. It was never discussed for the
2020 NEC by the code panel. It couldn't have been. It's impossible. Because it came out months afterwards. What the assertion by the panel is that they discussed it as a 2023 discussion from several public inputs and public comments to say, whoa, wait a minute, we didn't get a chance to talk about this.

So the comments were not and the input was not to raise it. It was to go back to the existing understanding and existing intent. And that's to leave it at four stories non-sprinkled and five stories sprinkled. Not to go all of a sudden with no input and no public comment and no transparency and being changed by two different codes that aren't related to the NEC. And, in fact, the vast majority of this country is under the International Building Code, which is not even an ANSI standard contrary to what a statement by the panel says that it never has been and never will be.

So we look at record -- and I basically have summarized this in writing -- the code changed after the process was done.
I've been accused of bouncing between the 2020 and the 2023. It's true because this didn't happen in either one of them. In fact, I could've referenced the 2002, '5, '8, '11, '14, '17, '20. They're all the same. When the building code changed, it changed every one of those. Not the words, but the intent and the application. It went from five stories maximum to 18 or 24 stories without any public process.

Did Code Panel 6 look at this? Yes, they -- I'm not contesting what they did in 2023 for their code cycles. There was a number of comments and a number of public inputs saying stop. We need to go back. We need to be able to discuss the rising of this, not being told that we don't have documentation to go back to it. Actually, the panel statement, Code Panel 6 in its statement says we are aware of the implications or the impacts to the national electrical code by a change of the building code. Panel 6 admitted it, that they didn't do it. That they allowed the code to change to the NEC. That's not part of our process.
Then there's all kinds of comments -- I didn't want this to be a technical discussion. But there are safety concerns. They say they don't have any. All you have to do is go back to 1996, 1999 code revision cycle for the NEC and look at the discussion around arc-fault circuit interrupters. There was a great number of reports about the number of home fires, anywhere from 25- to 40,000 depending on the year and what study you look at home fires. Hundreds of deaths, civilian deaths. Billions of dollars' worth of damage. Why am I referencing homes when we're not talking about homes? It's the same wiring method. It's a wiring method that is most susceptible to damage. If you go over the report that I submitted in writing with a link to it -- I couldn't reproduce the report. I don't have permission -- that states that they did some testing and a single camera blown through a piece of NM cable will reduce the insulation value from 20,000 volts to 1,000 thousand volts. The same with overdriving staples. This is really common.
I spent my early years as an electrician running hundreds and hundreds of miles of NM cable. And I can tell you that not everybody is 100 percent accurate on driving those staples and driving them properly. That report also states, well, even if that 120 volts won't sustain enough, it's probably true. But we developed arc-fault circuit interrupters at a huge cost to the resources in this industry to mitigate the problems of NM cable just in homes. Now, we're talking about putting them into a mid-rise, high-rise building of combustible construction that we don't even have necessarily the arc-fault circuit interrupter protection. If it's not in dwellings, it doesn't apply. So we have less protection on these buildings with limited egress and much more high-density occupancy and we want to go on and say it's safe when there's all kinds of documentation that says it isn't.

There's a thousand things I could say. I want to conclude my testimony with just asking the council to respect the overwhelming wishes of the membership at every stage here.
This was brought -- the CAM was brought to the NFPA electrical section that voted in support. It went to the floor of the technical meeting where it achieved a 299 to 93 favorable vote, over three-quarters. It went to the correlating committee with voting ten to two, more than three-quarters. And even the Code Panel 6, the majority voted in favor of this CAM. So we're here because the minority of people on one code panel disagree with the entire industry.

MR. GOLINVEAUX: Thank you. Ms. Hunter.

MS. HUNTER: Thank you. Chris Hunter with Cerrowire. I serve on Code-Making Panel 6. I am the principal for The Aluminium Association and I've been on -- well, it used to be Code-Making Panel 7 for NM cables, now it gets rolled into Code-Making Panel 6. And I've been on the panels that deal with NM cables since the 2011 NEC.

This is not a new concept. Obviously, this is something that's been talked about for a very long time in the NEC. We have decades
of research. We have decades of input and comments about NM cable and what occupancies it can be used in and how it should be installed. What it comes down to in this cycle is the code-making panel was made very well aware of the -- through the public input and through information based on the new Type IV building allowances of exactly where NM cable is going to be installed and exactly what kind of protections are afforded to these mass timber buildings. We now have heavy timber and mass timber. We have three new categories. We are not referring to another code, not even a building code. We're referring in Article 334 to occupancy types, which are well understood in the construction industry.

This entire issue was discussed in task groups. It was discussed in the first draft stage. Again in task groups in the second draft stage and at the committee meetings. The entire panel was able to review information about the new building types, the kind of protection that's required as far as sprinklers and egress. A tremendous amount of
research went into the building codes that allowed this new construction type. And the code-making panel discussed all of that.

The process worked the way it's supposed to. We followed the NFPA process. We had public input. Then we had open meetings. And at the end of it, the code-making panel decided that the existing language in Article 344 is the correct language and that there was no technical or safety reason to change the language or prohibit the use of NM cable in the new construction types.

So to come to it at this point and say that there was a change that people weren't aware of or they didn't get a chance to discuss, I don't believe that's accurate. This has been discussed for over three years now just in Code-Making Panel 6 and for many more years throughout the industry. So we've -- the process was followed. The process worked. And we still have no compelling information to change the results of that NFPA process.

Thank you.

MR. GOLINVEAUX: Thank you very much.
I'll open us up for questions from council.

Mr. Gallagher.

MR. GALLAGHER: Richard Gallagher, member of council. And this question is for Mr. Andre. With the IBC change that you referenced in 2020 that occurred after the process in the NEC, you were indicating concerns with the NFPA process and how it responded. Is there further insight to be shared to help us understand what you felt the process should have done differently.

MR. ANDRE: That's a very good question. Because, honestly, this really shouldn't be a technical discussion right now, it should be a process discussion. It was my hope that NFPA would've stepped in when they saw this and said we can't let this happen and administratively done something about it. How to deal with it past that point? I'm not sure. What we had to do was say, well, we didn't ever discuss raising the limits. But now we've got to go in and discuss, well, they're already there somehow magically. Now we've got to discuss should they be there or how to get it
back to where it was so we can have that
discussion. I don't have the answer to your
question, to be honest. It happened in between
code cycles. The panel did due diligence on
what they had to work with. But what they had
to work with is a drastically different process
to say let's take a five-story maximum and go
to 24 stories and document how that's safe than
it is to say it's already at 24 stories, now
you tell me how it's unsafe. We didn't do the
first part.

MR. GOLINVEAUX: Cathy.

MS. STASHAK: Cathy Stashak, member of
council. The question is, I guess, for either
of you. Did NFPA 5000 -- that's where this
change is, correct? -- did they go through the
process of first draft, second draft, and then
balloting to allow this change and the height
to be permitted?

MS. HUNTER: Do you want to take it,
Joe?

MR. ANDRE: Sure. Yeah. Both
buildings --

MR. GOLINVEAUX: Just state your name
and your affiliations.

MR. ANDRE: It's Joe Andre. I'm a consultant representing myself. Both processes went through their process. And the NFPA 5000 went through the process. They evaluated the buildings based on structure, egress, fire detection, fire prevention, things like that. To my knowledge, and I'm more familiar with what happened at the IBC because I know people that are on those panels. It was never discussed or even understood that this was going to impact the wiring method there. So the electrical portion was not part of that discussion.

MS. HUNTER: May I?

MR. GOLINVEAUX: Yes, please.

MS. HUNTER: Thank you. Chris Hunter with Cerrowire. Yeah. And Joe's correct. They did go through the process. NFPA 5000 did go through the through first draft and the second draft process. They did include mass timber in the Type IV occupancy. They had slightly different requirements than the IBC, but basically the same as far as construction
type and protection. So it did go through that process.

MR. GOLINVEAUX: Jeff.

MR. FOISEL: Jeff Foisel, member of council. Were there any public comments or public inputs filed for 5000 from CMP 6.

MS. HUNTER: Chris Hunter with Cerrowire. No, not my knowledge.

MR. GOLINVEAUX: Rich.

MR. GALLAGHER: Richard Gallagher, member of council. And it's a question for Mr. Andre. Was there any activity between cycles for the NEC to raise a TIA or anything related to this topic before the current cycle?

MR. ANDRE: Joe Andre, consultant. Yes, there was. I filed a TIA on that. And it was unsuccessful for several reasons. I think it was brand-new. The Standards Council said, well, we're going to wait until the 2023 cycle because we know it's on the agenda. So that TIA did not move forward. But I did file a TIA at that point. Yes, sir.

MR. GOLINVEAUX: Mike.

MR. CROWLEY: Mike Crowley, member of
council. This is for Ms. Hunter. You said you
had a task group that discussed this topic.
Can you expand on what they actually discussed?

MS. HUNTER: Yes. Chris Hunter with
Cerrowire. Yeah. So there were -- we
discussed the occupancy types, the protection
types. We have a member of Code-Making Panel 6
that is extremely active in the International
Building Code. And he had been in -- what the
protection and the construction methodology is,
he was very deeply involved in the development
of the mass timber addition to the IBC. And he
explained exactly how the construction
methodology was developed, the extensive
testing that went into this new allowance for a
Type IV occupancy. And we also discussed the
effective wiring methods based on height. And
really there was nothing brought forward in the
task groups that would indicate that there was
any difference with any wire methods based on
height. And we have no -- we have no floor
limits. We have occupancy types. So that's
where the discussion focused.

MR. GOLINVEAUX: Okay. Are there any
further questions from council? Seeing none, Mr. Andre, five minutes to summarize your appeal.

MR. ANDRE: Joe Andre, consultant. In summary, I would like to make a point. And I will name a name. John -- Mr. John Shue (phonetic) is a member of the IBC structural committee. He is a professional engineer, a structural engineer, retired chief building official for the City of Seattle. I know him through business dealings quite well. And we discussed this.

So I have an expert as well who was involved on the panels. And when he found out what the implications were for the electrical, he went to his electrical division and as a emergency rule prohibited NM cable from being put in buildings of this sort, at least of a certain height. The state of Washington followed suit, the state of Oregon followed suit, the state of California followed suit. So we now have -- and they all did it a little bit differently.

So now we have a network of local
requirements around the country, some of which I'm sure will accept it and some of which won't, they have serious concerns. So my expert on the building code who has sat on building code panels through the IBC for a number of cycles has serious concerns about it.

As far as the -- there's a statement that the wiring method doesn't know what building it's in. That's not entirely true. Tall buildings, especially wood buildings are attractive to the structural engineer because during wind events, during seismic events, and even during earth settling, they can move. And they will adjust themselves. They won't fall down. They're very good at swaying.

Swaying is exactly the kind of thing that rubs in corners around corners where you run NM cables that will potentially damage the cables. Other wiring methods are much more robust than that. That's why the NEC in '12, when they talked about AFCIs, directed it towards dwellings. And this is a dwelling-intended wiring method. If you are putting it in metal raceways and metal cables,
those requirements go away because the danger isn't there. That will conclude my statement.
Thank you.

MR. GOLINVEAUX: Thank you.
Ms. Hunter, five minutes.

MS. HUNTER: Thank you. Chris Hunter with Cerrowire. Building codes change every three years. We have standards changes, codes changes in all of our hundreds or thousands of codes and standards that apply to the buildings and the products that we put into them. That is baked into the revision cycle and the process. During the 2023 NEC and even the TIA that proceeded the 2023 NEC, the code-making panel, responsible for the uses permitted for NM cable, considered the changes to the occupancy type, the changes to the building codes, looked at how that might affect or not affect the wiring method and following the NFPA process and voted to reject any changes.

Thank you.

MR. GOLINVEAUX: Thank you.
And as we conclude the hearing, let me inform you as to what happens next. The
council will deliberate and reach its decision in executive session. Once a decision is made, that decision, including background or any other information council believes relevant, will be prepared by the NFPA staff and will be published by the secretary of the Standards Council on the Standards Council web page www.NFPA.org/SC2022 in accordance with the regulations governing the development of the NFPA standards.

Additionally, the decision will be sent to the appellant and to the chair of the responsible committees directly. The official opinion and decision of council is that as published by the secretary and no other communication shall be considered the council's decision or position. Any questions regarding the decision should be addressed with the secretary.

On behalf of NFPA Standards Council, I want to thank of those who participated in today's appeal hearing. Your involvement, as well as the stakeholders', is important in the NFPA development process. This hearing is now
ended. Thank you.

MR. ANDRE: Thank you.

MS. HUNTER: Thank you.

HEARING ON 22-8-5-W-1

MR. GOLINVEAUX: Okay. The next hearing is related to agenda item number 22-8-5-W-1. This is on NFPA 70, Section 680.26(B) and CAM 70-117. I'll have you gentlemen introduce yourselves in a second here.

Do I have any recusals of council on this agenda item?

MR. REISWIG: Thank you, Rodger Reiswig, member of council. For the record, I am recusing myself on this agenda item. And I will not be participating as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair. John Kovacik, member of council. For the record, I am recusing myself on this agenda item. And I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.
MR. GOLINVEAUX: Thank you, gentlemen.
I'm going the have you introduce yourselves up here. So we have Mr. Hartwell, Clark and Door, I believe. Please introduce yourselves first.

MR. HARTWELL: Yes. My name is Frederic Hartwell. I'm representing myself. And I am the appellant.

MR. GOLINVEAUX: Okay. Thank you.

MR. CLARK: Rueben Clark with CMI.

MR. GOLINVEAUX: And, Rueben, you're also speaking in favor of the appeal?

MR. CLARK: In favor. Correct.

MR. DORR: This is Douglas Dorr with the Electric Power Research Institute. I won't be speaking. But I'm here to support in questions that the council has on the matter.

MR. GOLINVEAUX: Okay. And you're in favor of the appeal?

MR. DORR: I'm in favor of the appeal.

MR. GOLINVEAUX: Will anyone be speaking against the appeal? Okay. Not seeing any, I believe, Mr. Hartwell, you're going to be the first speaker?
MR. HARTWELL: Yes, sir.

MR. GOLINVEAUX: Okay. So please begin by introducing yourself and proceed with your opening statement in support of your appeal.

MR. HARTWELL: Yes. Frederic Hartwell. I'm representing myself. I've been on Code Panel 9 under the electric code for many -- for the last 32 years. But this is not a CMP 9 issue. I spent considerable time perfecting the written argument that you've all had a chance to read. I want to begin by acknowledging that the appeals to the Standards Council have to meet a much higher standard than in simply being correct. Generally, the council -- when the councils intervene, and it should only continue to intervene in an instance where there's compelling evidence of technical -- where the technical committee action is unsubstantiated or when it creates a threat to public safety. I've been involved in a number of Standards Council hearings over the years and I've certainly tried to follow this. And I'll say on a personal note that I'm
75 years old and this is probably my last appeal before council. And, fittingly, I think it's the most important. Because this appeal really involves human lives that hang in the balance on this. And, also, frankly, this also involves the ongoing credibility of the NFPA standards process in these matters.

And you're going to hear about voltage gradients and so forth. This is -- the NEC does not control these. They're largely a part of the power system. And the utilities use grounded electric distribution and they do so for very good reasons. And, unfortunately, like most things in life, they're not perfect. And they can result in voltage gradients in the earth and unbalance. We are not going to revamp our entire utility distributions even knowing that these effects are part of the package.

Thirty-five years ago in the 1987 code, the NEC solved the consequences of these gradients in livestock farmers by requiring equipotential planes. Now farmers need not have cows drop out of milk production. It is,
to me, embarrassing and almost unthinkable that
after 14 years of discussions -- the first was
raised after the 2008 code came out -- after
14 years of discussions, we still treat cows
better than people. The utility voltage
gradient of ten volts that resulted in the
North Carolina loss experience that generated
the TIA that's now pending before council could
very easily have been 16 volts. If it were --
and voltage gradients of that magnitude are
well known in this industry -- the family that
received the painful shocks in those swimming
pools in North Carolina, they could easily have
been dealing with fatalities.

I'd like to introduce my -- Rueben
Clark who makes the grid. And most
particularly, Rueben has been in attendance at
numerous meetings of Code Panel 17 that I have
not been in attendance on. And he has some
very important information to share.

MR. CLARK: Yes. Rueben Clark with
CMI. And here's a little chronology. The
05-680.26 was written to correct deficiencies
in pool shields and that when structural steel
was not available to be coded, the '05 code required a copper grid as an alternative when structural steel was not available.

So pool builders generally use structural steel reinforcement in pool shields. So that was never an issue to them. But they found a way to save 4- or $500 dollars by putting fiber -- in the pool's shell which doesn't require any structural steel. So they vehemently objected to any requirement for a grid in the deck. So much so that they influenced 17 to lower the code in '08 to allow a single wire in the deck to create that equipotential plane. And the sole substantiation was an opinion read from the '08 ROP, a single -- copper conductor should be sufficient so that in-ground currents circulate through the pool perimeter. No tests or data but prove actually lack of understanding of the issue. Equipotential bonding is not collecting ground currents. It's creating an equipotential plane, which a single wire does not do.

The opinions have been proven false.
many times. And I can't understand why 17
continues to ignore every industry expert, the
TIA that's documented the industry, and the now
the 2021 Coast Guard report which has
documented for deaths that we can prove
could've have been prevented with a grid in the
deck. The issue was raised in 2011 in CAM
70-22 which overwhelmingly was passed by the
floor vote as was this CAM. But 17 states that
there were deaths or injuries at the time so
the single wire stayed in. This issue was
raised again in 2020 with PI-47 and others
resulting in three horrible optics for us.

I was on the task group when the Pool
& Hot Tub Alliance on the call had a
representative that stated he couldn't attend
the next call and asked other members, you
remember how to vote on this issue, correct?
Because this is -- that guy is trying to use
the NEC as his marketing department. I
documented that objection to the chair in an
e-mail. Because directing other panel members
how to vote before any open discussion is not
in the NFPA process.
Another violation was in 2020 at second draft cycle where five subject matter experts presented on why we have to eliminate the single wire. One person was in support of it. So the panel voted to eliminate the single wire. However, the next morning after most of the experts had left, Sanberg (phonetic) moved to re-open the vote from yesterday. And when the chair asked for the justification, he said I met with some people last night who convinced me it wasn't necessary. So in the light of day with open debate and all of the experts, the panel votes one way. But after a private meeting at night, three members changed their votes. That's horrible optics.

The third item is Dr. Jens Schoene of EnerNex who authored his very own research foundation report who declared that someone on the task group instructed him to tone the severity of the problem and remove the strong statements from the conclusion. That manipulation is egregious. The Pool & Hot Tub Alliance actually brags on their website that they benefit their members' interest, I'd say,
over public safety. However, the cost of this copper grid is the same as installing rebar. It's insignificant. It's about 3- or $400. You can do the math. But the 3-by-100-foot code is 600 additional feet of copper wire at 36 cents a foot is $180. That's negligible labor on all -- anybody can make these grids. Like rebar. It's not a proprietary or patented product. It's an insignificant expense on a luxury item. But we all pay higher utility bills because of needless millions of dollars that utilities spend on these pool deck shocking incidents. And you can ask the world's leading expert on this, Doug Dorr about that.

And do I ask you to review the negative comments on both the TIA and the CAM. Because eight of the nine negative voters made statements they didn't receive supporting reports or new information. So either the NFPA staff violated the process or the panel did by their total disregard. The sole reason for the TIA was new information to pools built in North Carolina, single wiring the deck created a
shocking hazard. New decks that were now installed with a copper grid, the shocking hazard goes away.

And I want you to note the panel has no longer asked for deaths or injuries after this and the 2021 Coast Guard report. Finally, I think they should recuse themselves because lack of understanding and expertise on this issue. They question solar resistively, GFCI protections, -- contact limits, which have no bearing on this matter. None. It's maliciously thrown in. The council must have meetings, because the CMP's only objections were where are the deaths and injuries. Now we have that and they still won't act. EPRI. EnerNex. IEEE. Multiple utilities. The industry says that actually CMP 17 has it wrong on this. And the council must intervene and uphold the floor vote and they have ample justification to do so.

MR. GOLINVEAUX: Okay. Thank you. Not having any speaking against the appeal, I'll open this up to questions from council. James Golinveaux, member of council.
And this question is for Mr. Clark. You spoke very quickly and there's a lot of things said. So I got to unwind a little bit of it. You said that some members should have recused themselves. Could you expand and help me understand who should've recused themselves on this issue.

MR. CLARK: Rueben Clark, CMI. My contention was that they should have on this issue because their comments don't demonstrate an understanding of this subject matter. The comments on substance that they did make decisive ones because they did receive new information were questioning solar resistively -- contact limits, and GFCI protection, which equipotential bonding of the pool deck system has nothing to do with the electrical circuits. And that's why I state that they were just maliciously thrown in. They had nothing to with equipotential bonding. So I contended that they should have recused themselves.

MR. GOLINVEAUX: Okay. James Golinveaux, member of council. Just to
clarify, you're saying that the recusal wasn't because of a financial interest or some conflict of interest; it was more of their understanding of the issue.

MR. CLARK: That's correct. Because I know that the council gives great -- to the technical committee, as you should. Because you're relying on them to be the experts on the subject matters that they cover. And in this case, every industry -- every industry expert, every test, every data, that's been produced -- and now we have real-world examples -- has proven that the single wire currently in the code is unsafe. And you have the world's leading expert here, Doug Dorr. And, again, one of the comments mentioned that IEEE should do a study. IEEE has already weighed in. Matt Norwalk, the chair of the stray and voltage working committee has pleaded multiple cycles with the committee to make this change. And they still haven't done so.

MR. GOLINVEAUX: I'll start with Mr. Quiter.

MR. QUITER: Jim Quiter, member of
council. I'm struggling to find where the process issue comes into this discussion. There's -- it went through the code. It went through the annual meeting, the technical meeting. It went back to the committee who voted it down. Where really -- other than your question -- you had some comments about process in the earlier edition. But in the 2023 edition, was there a process violation that you can elucidate more clearly on?

MR. HARTWELL: Well --

MR. GOLINVEAUX: Please state your name.

MR. HARTWELL: Fred Hartwell. I don't think there was an explicit violation of the rules. I think there's -- on the merits, the panel should have moved forward with this and they didn't. And the reason escapes me. But I think this falls into the category you can't legislate stupid.

MR. GOLINVEAUX: Mike.

MR. CROWLEY: Mike Crowley, member of council. Can you expand on your -- you made three comments in here that I was little
concerned about. Directed votes. Optics to change the vote. And then report manipulation. Can you expand on that and just give us a little more background on your feelings and how that may have affected the technical committee.

MR. CLARK: Certainly. My contention -- and this will speak a little bit to the process in my opinion -- was I was on the task group for 17 in the '20 cycle. And at the end of one of the calls -- the code is obviously different for the sections of the code -- one of the hot tub lines representative stated to the group, and I don't think he knew that I was even on the call or that I was that guy trying to use the NEC as its marketing department. He stated he couldn't be in attendance on the next call to discuss this issue and stated to the other members that you remember how to vote on this issue, right? This is that guy trying to use the NEC as his marketing department. That was prior to any discussion of this topic in that task group. And the task group is obviously before the panel discussion. So that was something that,
to me, stated there wasn't a directed vote by
his organization. He was directing other
members how to vote before any discussion took
place in and before they could ever consider
the evidence put forward.

And the other one was on the 2020 --
the second draft meeting of the 2020 cycle,
there were five subject matter experts. The
IEEE chair was one of those. Doug Dorr was
another one that gave testimony on why the
single wire was dangerous and the fact that not
one piece of evidence has ever been presented
by the panel to the panel proving the single
wire is safe other than at that time there
hadn't been any documented deaths. And the
panel voted one way on that day. The next
morning, the first order of business, one of
the members reopened the vote. And the chair
asked for his justification, and he said I met
with some people last night who convinced me it
wasn't necessary. No further discussion on who
those people were and what was discussed,
technical merit or otherwise, and three of
those members changed their vote the next day.
And that's why I said the optics is just absolutely horrible.

And the third item I mentioned was on a conference call. And Doug Dorr was a witness to this with Dr. Jens Schoene who at EnerNex, the Fire Protection Research Foundation's own report, he stated that someone on the task group had seen the draft report and had instructed him to remove the severity, tone done the severity of the problem and remove the strong statements from the conclusions. And Doug Dorr after the phone call said, well, I saw the draft report as an industry colleague, and he's right. The final report was vastly different. So the research on this task group asking this expert to conduct this study actually influenced and directed, whatever word you want to use, the outcome and the conclusion of that. And that, I just feel, is horrible.

MR. GOLINVEAUX: Ken.

MR. BUSH: Thank you, Mr. Chair.

Kenneth Bush, member of council. Can you -- it's probably a question directed to Mr. Clark -- can you tell me if the chair of
the committee was made aware of these possible
optic problems that you have identified as part
of your testimony?

    MR. CLARK: Yes, sir. I sent an
e-mail to the chair of 17 at the time objecting
to that disparagement by the representative on
the panel. And there was no response. But it
was documented.

    MR. BUSH: So you received no
response?

    MR. CLARK: That's correct.

    MR. BUSH: Thank you.

    MR. GOLINVEAUX: Any other questions?

    MR. BUSH: Second question. Kenneth
Bush, member of council. Mr. Clark, do you
perceive any problems with the types of
representation or the ballots of that
particular code-making panel?

    MR. CLARK: In general, no. Because I
personally was disappointed to hear that with
The Pool & Hot Tub Alliance representative
because he's probably the most vocal member of
that panel and actually does contribute a lot
to the NEC to the code development process. So
in general, no. And sitting through the task
group and other couple of cycles of meetings, I
don't necessarily have a problem with the panel
itself. But on this matter, I do. Because of
the statements that had been made. Their only
objections have ever been, when they do provide
one on substance, were there have been no
documented deaths or injuries. And they've
never produced or seen one document, one test,
one piece of evidence that proves a single wire
is safe. And it's my contention -- I used the
analogy to them that airbags, seat belts
increases the cost of cars tremendously.
They're completely unnecessary. It is not
necessary to have a seat belt or airbag in the
car until you have a wreck. And that is what
part of the NEC is for is correcting problems,
anticipating problems, and to make a safe
environment. Now, on this matter, I do have an
issue because I don't know that they actually
have an understanding of the subject matter.
And I do have a problem with them not
considering all the evidence presented.
Because, again, it's overwhelming. I just
named you ever industry organization that has
spoken out, written letters, issued statements
on this. And they continued to ignore it. And
now they've ignored injuries and deaths on this
matter.

MR. GOLINVEAUX: Thank you. Cathy.

MR. STASHAK: Cathy Stashak, member of
council. Do you have access or copies of the
reports of deaths and injuries, like maybe from
the Consumer Product Safety Commission? Is
there that kind of record out there that the
single wire is unsafe?

MR. CLARK: Yes. There are two. And
you have one before you with the TIA that was
submitted. And I understand that that
appellant did not request to be heard. He just
submitted the written documentation. But there
were two instances documented just recently in
North Carolina where pools were constructed
with the single wire and created shocking
hazards. In different locations of the state,
not in the same one with the same conditions
even. And one of those homeowners said that he
was so afraid of the shock and it was so bad
that he could not make himself to reach into
the skimmer to remove debris from the pool and
didn't know what to do. So that documents
right there two injuries that people have
incurred. And had the report that I mentioned
is the 2021 Coast Guard report on electric
shock drowning which does document deaths. And
I'll let Mr. Hartwell speak on that a little
further.

MR. HARTWELL: Well, I was going to go
back to the North Carolina. My written
argument includes -- and so the council, I'm
sure, has this -- my written argument includes
the EPRI report on the North Carolina pool
situation. So that is meticulous documentation
on the performance of single wire versus the
performance of the mesh. And the person to my
left here, Doug Dorr, is the person responsible
for that report. But I just want to say that
that is lost experience. That's pure lost
experience. Ten-volt voltage gradients in the
earth from the utility, gradient continues to
this day. Single wire, they could not use the
pool. I think I'm going to give the mic to
Doug on this. Because I think, as I recall, he touched one of the rails and got belted hard. And he can tell you exactly just what that was like. And ten volts and that kind of a result in that pool, the homeowner spent $16,500 to rip out all the concrete. Once again verified that the single wire was properly installed in accordance with the code. They rip it out. They put in -- they replace the perimeter of the pool with a mesh and that family is now using the pool. And the same ten-volt voltage gradient is there. EPRI has documented all of that. I'll pass this on to Doug.

MR. DORR: Doug Dorr with the Electric Power Research Institute. I can just support what Fred said. I physically was at the site to do the measurements and so I do have the documentation of the difference. To the question of deaths or serious shock injuries, that's kind of a level issue. So people can actually get seriously shocked and then die a few days later in the hospital. So there's -- we really shouldn't split hairs on whether it was a perceptible thing or whether it meant
resulting in death. They all, if the conditions are right, could result in death with that single wire as opposed to the equipotential grid. And it shouldn't matter where we put it. Whether it's on a cruise ship, whether it's the top of a skyscraper, or whether it's at an in-ground pool in North Carolina, if we create that same thing we did for the dairy farms many, many years ago with an equipotential surface that can be stood on and walked on, contacted in any way by a human or an animal. We haven't done anything to eliminate voltage. What we've done is we've given the users a safe way to contact multiple points at the same time and not experience loss.

MR. GOLINVEAUX: Thank you. David.

MR. KLEIN: David Klein, member of council. To any of you three gentlemen, was the code-making panel aware of the EPRI report?

MR. DOOR: I've presented to the code-making panel I'm going to say three to four times on different tests from EPRI's research facility up in Massachusetts where we
have a test swimming pool. So they are aware. And every time we've presented results, they've come back with, well, what about this? And so we've come back with new results. And then it's, well, what about the bodies? And so it's just been a -- I'll call it a cycle of repeated questions. But there's never -- they've been aware that the single wire has been deficient since at least 2012.

MR. KLEIN: David Klein, member of council. As a follow-up, so I think I understand in your response that you've presented to the code-making panel your testing. But are they aware of the specific North Carolina incident?

MR. DORR: They are. They were provided those reports with, I'm going to say, the TIA and with Mr. Hartwell's material. Which surprises me that they keep saying no new evidence.

MR. GOLINVEAUX: Dawn.

MS. BELLIS: Dawn Michele Bellis, NFPA staff. In your appeal, Mr. Hartwell, you said that EPRI was about to do more testing that was
going to take place in close proximity to this hearing. First question, has that taken place? And what were the results of that testing?

MR. HARTWELL: I'll pass this on to Doug who's in charge of that testing. But I'll say the testing occurred one week ago today in Lenox, Massachusetts at the EPRI facility. And that we confirmed what we've found very consistently over the past two years.

MR. DORR: That's correct.

MR. GOLINVEAUX: Can you introduce yourself, again, just for the stenographer. I'm sorry.

MR. DORR: Doug Dorr with the Electric Power Research Institute. The testing happened on August 3rd of 2022. And it did reconfirm once again that when you do exactly the same voltage gradients around a swimming pool and compare the single wire to the grid mesh, the single wire does not create a voltage -- it does not create equipotential between the water and the deck. And the grid mesh does create that equipotential. So it just reconfirms the same test we have been doing and have done for
the past dozen years.

MR. GOLINVEAUX: Dawn.

MS. BELLIS: Dawn Michele Bellis. A follow-up question. So based upon those findings, do you have -- when you had taken this information to the committee before, did they ask for specific results, like certain voltage they were looking for that --

MR. DORR: Doug Dorr with the Electric Power Research Institute. The first time we took it to the committee they said, well, we took in some pretty severe results that showed hundreds of volts generated around the pool deck. And they said, well, this is a utility problem, not a code problem. So the second time I presented it to them, it was on scenarios that were generated at homes and apartments and real-world faults that happened on global distribution systems. And they, at that point, said, well, there are no bodies, why would we need to change this if there aren't any, you know, deaths being reported. And then the third time, they did change it.

As Mr. Clark mentioned, I was at that meeting.
We presented the results along with four other subject matter experts. Once the results were presented, they voted to add that grid into the pool and remove the single wire. When I left the meeting that afternoon, because they were on to other parts of their agenda, they had already changed the code or in the second revision changed it. And the next day, apparently when none of the subject matter experts were there, they reopened the vote and changed it back. That's about as accurate as I can be on this.

MR. HARTWELL: I just want to add my understanding -- Fred Hartwell. I want to add that my understanding is that that change of vote occurred without a single word being issued, being mentioned at the meeting, I would like to change this because and substantiating it. It was just, okay, we're going to change this now. As I said in my argument, is that against the rules? Technically, no. But, you know, just imagine if the press looked at this. And this could very easily go that direction.

MR. GOLINVEAUX: Jeff.
MR. FOISEL: Jeff Foisel, Standards Council. Taking a look back, I think you said that you were on the review and research foundation report?

MR. DORR: This is Doug Dorr with EPRI. The gentleman that created the research foundation report came up to our facility in Lenox, Massachusetts. And I believe he went down to the only other facility in Georgia. And he -- we afforded him the opportunity to do the tests he wanted to see done. So he got a chance to use the facility for a day and understand all of the ramifications of different designs of grids and other -- other options, other mitigation options. So when he was done, he shared with me a draft, a copy of the draft. And I was surprised when I saw the final report didn't look like the draft he shared with me.

MR. FOISEL: Were the conclusions -- a follow-up. Jeff Foisel, Standards Council -- were the conclusions drastically different, or were they phrased different, or was this a totally different report?
MR. DORR: Yeah. It was a totally
different report. Representing EPRI, I just
want to say I can't really comment on
dramatically different versus different.
Because we're dealing with fact-based science,
and the only -- my only real qualification is
whether or not the tests were accurate. So
while the report was not the same draft that I
saw, I can't really comment on how different it
was.

MR. CLARK: I can answer that. Rueben
Clark, CMI. When we were on the call, I went
through several strong statements of conclusion
that Dr. Jens made stating that the single wire
was unsafe, deficient, provided not --
basically no protection. And when I asked him
point by point in various sections of the
report if this is true, if this is true, and he
said yes all along. And then I questioned him,
well, the conclusion doesn't state that
strongly enough and the panel didn't glean that
from your report. Why? And that's what he
said, well, I was instructed by a past member
to tone down the severity of the problem and
remove some of the strong statements from the report.

MR. FOISEL: One more follow-up question. Just what was the actual title and date on that report from the research foundation?

MR. CLARK: It was by EnerNex, the research foundation report. And it was authored by Dr. Jens Schoene. And I don't have the exact title of it. But I can get that to you no later than this afternoon for sure.

MR. KLEIN: David Klein, member of council. Can you spell the name Schoene, please.

MR. CLARK: Yes, sir. Dr. Jens, J-E-N-S, Schoene. S-C-H-O-E-N.

MR. KLEIN: And just a follow-up question.

MR. CLARK: Yes, sir.

MR. KLEIN: When you saw the draft and then you saw the final report, was the data presented different between the draft and the final report?

MR. CLARK: I did not see the draft
report. I only saw the final report. And in reading the report, I saw these statements scattered throughout. Because he -- he looked at the test that I was a witness to in Georgia. He was witness to EPRI's report and various other testing that had been published. And he would make strong statements throughout the report. And in the conclusion, it wasn't that strong. And that's when I asked him, well, you say this in this section and this and this and this in these sections. The panel didn't glean this because you said you believed this to be a deficient code and very unsafe and we need to eliminate it. And he said yes. Well, the panel didn't glean that from your report. And that's when he responded, oh, yes. I was instructed to tone down the severity in it.

MR. KLEIN: Okay. David Klein with a follow-up question. So I think what you're saying, if I'm understanding you correctly, is that there were opinions made throughout the report which were changed. But my question is was any data changed?

MR. CLARK: I don't know because I did
not see the first draft report.

    MR. KLEIN: Thank you.

    MR. CLARK: I only saw the final report.

    MR. DORR: I'd say it's unlikely any data changed.

    MR. GOLINVEAUX: Okay. James Golinveaux, member of council. I want to clarify this just one more time. And I apologize for beating on this one. The warnings and the comments were still in the body of the report. In your opinion, what I'm hearing, is that they were removed from the summary?

    MR. CLARK: That's correct.

    MR. GOLINVEAUX: Just a follow-up. But they were still in the body of the report; they just were not in the conclusion?

    MR. CLARK: Yes, sir. And it was quite a lengthy report.

    MR. GOLINVEAUX: Okay. Thank you. I just wanted to make sure.

Are there any further questions from council? All right. Seeing none, I'm going to
let you divide up the five minutes of your summary argument in support of your appeal.

MR. HARTWELL: Thank you, Mr. Chairman. Fred Hartwell. It's kind of fun to do this in the City of Boston because 252 years ago my favorite founder, John Adams, was representing the British soldiers who fired on the crowd during the event we commonly know as the Boston massacre. He represented those men because above all else he believed in the rule of law. And his speech to the jury in this very city continues to inspire. This is what he said to the jury: Facts are stubborn things. And whatever may be our wishes, our inclinations, or the dictates of our passions, they cannot alter the state of the facts in evidence.

The issues in this appeal have been weighed and the recommendations supported not by one, but two annual meetings and multiple scientific studies. These studies have resulted in the elicitation of facts capable of being generated and confirmed by subsequent experimentation in this case as recently as one
week ago. Panel 17 relies on an opinion expressed in the 2018 -- 2008 cycle. The facts, stubborn as they are, keep being replicated in subsequent studies. Nothing will be gained and great harm will likely result should this CAM be kicked down the road to the 2026 cycle.

We have now reached the point where this issue is readily capable of being under by the lay press. The written argument for this appeal is freely available, as it should be, to the public. If this council acts, this issue will go away and NFPA will be able to appoint to the integrity of its process, as it should, a process that does include this deliberation. Please grant the appeal and put this behind us.

Thank you.

MR. GOLINVEAUX: Thank you. As we conclude the hearing, let me inform you as to what happens next. The council will deliberate and reach its decision in executive session. Once a decision is made, that decision, including the background of any other information council believes relevant will be
prepared by NFPA staff and published by the
secretary of the Standards Council on the
Standards Council web page www.NFPA.org/SC2022
and in accordance with the regulations
governing the development of NFPA standards.

Additionally, the decision will be
sent to the appellants and to the chair of the
responsible committees directly. The official
opinion of the decision of council is that as
published by the secretary and no other
communication shall be considered the council's
decision or position. Any questions regarding
the decision should be addressed with the
secretary.

On behalf of the NFPA Standards
Council, I would like to thank all of those who
participated into today's appeal hearing. Your
involvement, as well as the stakeholders', is
important to the NFPA standards development
process. This hearing is now ended. Thank
you.

I'm going to call for a ten-minute bio
break before we hit the next series of appeals.
So we'll go off the record and be back in ten
minutes.

(Recess taken.)

MR. GOLINVEAUX: I'm going to go back on the record. I am James Golinveaux, the chair of the NFPA Standards Council. I'm going to ask if anybody new has joined the meeting since we did self-introductions. And if they have, could they introduce themselves and their affiliation. So is there anybody that is -- Mary. Mary, would you introduce yourself and your affiliation, please.

MS. KOBAN: Mary Koban, AHRI. I'll be speaking later this afternoon. Thank you.

MR. GOLINVEAUX: Very good. Thank you. Is there anybody else who joined the meeting that did not introduce themselves earlier? Okay.

HEARING ON 22-8-5-Y

MR. GOLINVEAUX: So we are going to move to the hearing related to agenda item number 22-8-5-Y on NFPA 70, Section 310.3(A) on CAM 70-126 and related CAMs identified as 70-60, 70-127, 70-128, and 70-129.

Before I introduce the speakers, are
there any members of council that need to
curse themselves? Go ahead, please.

    MR. REISWIG: Thank you. Rodger
Reiswig, member of council. For the record, I
am recusing myself on this agenda item, and I
will not be participating as a member of the
Standards Council in hearing, deliberations, or
voting on this matter.

    MR. KOVACIK: Thank you, Mr. Chair.
John Kovacik, member of council. For the
record, I am recusing myself on this agenda
item. And I will not participate as a member
of the Standards Council in the hearing,
deliberations, or voting on this matter.

    MR. GOLINVEAUX: Thank you, gentlemen.
I'm going to have the maker of motion
here, the appellant, introduce yourself. And
then I'll go across the table for
self-introductions. Your name and affiliation,
please.

    MR. GRASER: Thank you, Council.
My name is Peter Graser. I am the
president of the American Bimetallic
Association and the VP of Copperweld
Bimetallics.

MR. MELLO: My name is Chuck Mello with cdcmello Consulting. I am here to assist Peter and will not be speaking, but will be here to answer questions.

MR. KEELER: My name is Tim Keeler. I'm an attorney with Mayer Brown law firm representing Southwire.

MR. WATSON: Thank you, Mr. Chair. This is Dave Watson with Southwire.

MS. HUNTER: And Chris Hunter with Cerrowire.

MR. GOLINVEAUX: Okay. Thank you for that introduction.

Mr. Graser, you have ten minutes to support your appeal, please.

MR. GRASER: Thank you, sir. We all love this work and the NFPA process that we vowed to defend. The bottom line of this appeal is a restraint to trade. A group of competitors colluding to keep another out. It was done in two ways. One, they stacked votes on technical panel by influencing organizations with voting rights on it. I've
included a chart in the written appeal, that Mr. Mello is holding up now, that explains the interconnections of these organizations. And how it influences voters. And, two, by executing a sham at a critical time in the process that unduly influenced -- to their position.

Let me set the stage with a little background. It begins in August of 2019, when this council made two formal decisions which allowed the NEC correlating committee to form a task group called bimetallics task group. After extensive -- the task group created a set of coordinated PIs for inclusion of 14-gauge copper-clad aluminum or CCA aluminum in the 2023 NEC as a grand circuit conductor. As you know, grand circuit conductors made with CCA size 12 and larger have been included in the NEC for over a half a century performing excellently.

Anyway, the inputs were accepted by panels 2, 9, 10, and 18. However, the lynchpin commercialization rests with panel 6. We're in the purview of conductor sizes and wiring.
methods. 14 CCA was ultimately defeated by panel 6, and only panel 6, by an illicit stunt. Here I'll state some facts from the cycle. The stunts should become pretty obvious.

As I mentioned, this council created a bimetallics task group comprised of 13 technical experts of balanced interest. The task group created 19 public inputs to expand the use of CCA to 14-gauge based on the strength of the scientific research and data. In the first revision, the task group's PIs carried panel 6 by a vote of 12 to 2. The technical substantiation compared the performance of 14 CCA to 14 copper under equivalent test conditions. And please keep that in mind in the absence of any test standard to test against, you have to have a comparable, a control. A known quantity against an unknown quantity. In this case, the unknown is 14 CCA; the known was 14 copper.

In the second revision -- now, this is where the problem started -- a group of three competitors and their common association submitted a coordinated set of 15 public
comments opposing 14 CCA. The PCs were substantiated by four -- four test reports that all adhered to a similar template basically in lock step. The test plans followed no adopted standard, criteria, or procedure. In short, they were nonstandard tests. In the test the wires were arranged atypically laid out to obtain heat rather than in the usual fashion typical of branch circuits.

The other elements common to the four reports include the following -- and I'm going to read these because I want them in the record. They all report wire being tested under ceiling or wall insulation. By the way, no industry standard tests wire that way under big thick insulation. It's hard to control. All were claimed to represent a real-world scenario. Three, all report data on 14 CCA only. Four, all failed to report the origin of 14 CCA, which isn't commercially available yet. Reporting the origin of test samples, especially in this case, is standard protocol. Five, all failed to provide certificates, certification that the 14 CCA is real. It
doesn't meet the standard. This is the actual
stuff. In the October debate, panel members
were stonewalled when they asked that question,
where did it come from? All reports 14 CCA is
overheating. That's number six. No surprise.
Number seven, all conclude that 14 CCA is
dangerous. Number eight, all four reports from
four different labs failed to report data on
14-gauge wire made from copper tested under the
same parameters and conditions. What is there
to hide?

So what are we to conclude? Simply
put, the opposition purposely withheld
information from the technical panel because
test data was upheld at a critical point in the
process. The ballot was unfairly influenced
which ultimately killed the proposals of their
opposition. This is the clearest violation of
the NFPA guide for conduct that states -- and
I'll read this -- quote, no participant should
ever attempt to withhold -- withhold -- or
prohibit information or points of view from
being presented particularly on the grounds
that the participant is in disagreement with
the information or the points of view.

There are two test reports from the bimetallic task group, which Mr. Mello can tell you about, therefore, it should stand the technical substantiation for this appeal. Its research was independent based upon sound and scientific principles and was comparative in its design. It also carried a wide consensus before the violation occurred during the second revision.

So I'll finish with this one word, "helplessness." Being unable to stop a course of events started by an act that was rotten to its core. Watching violators get away with it. Them believing to be above the rules, the NFPA. And even our nation's laws. I've endured this feeling since October when the stunt to buffalo panel 6 occurred. This nausea I don't wish on anyone. Lest we encourage more subversion, I urge this council to accept this appeal.

Thank you, Council.

MR. GOLINVEAUX: Thank you. You have ten minutes to respond.

MR. KEELER: Thank you to the council.
As I mentioned, my name is Timothy Keeler. I am a partner with the Mayer Brown law firm here representing Southwire. I'm joined by Dave Watson, the principal engineer of Southwire who will be available for questions.

Southwire disagrees with the proposed amendments that were presented by American Bimetallic Association, the ABA. That would include 14-gauge copper-clad aluminum conductors and cables in the national electric code for use in powered lighting circuits at various -- these conductors should not be in the code for power lighting circuits until more testing can be done to ensure they did not exceed their maximum temperatures when installed in typical residential and commercial insulations.

ABA's strategy is to argue that panel 6's robust process and careful deliberation which resulted in clear recommendations was actually the result of some conspiracy against copper-clad aluminum. It alleges the -- code-making process is motivated by a desire to restrain trade of copper-clad
aluminum products and that the ABA opponents were willing to fake test results. None of these assertions have merit.

ABA's argument relies on the faulty premise that panel 6 has been corrupted by industry association members that unfairly wielded their influence. ABA alleges these members participate in multiple industry associations and, therefore, have outside influence over the panel 6 vote. Contrary to the ABA's assertions, these industry associations are large and typically determine their representatives vote on the panel through member consensus, not the individual interests of the panel nominee. In addition, these associations are important players in the industries that panels regulate. There's no surprise that such experts, like those qualified to sit on code-making panels, seek out membership in multiple industry associations. This representative voting structure is routine. And the ABA only offers insinuations and no evidence of that.

The ABA also claims its opponents seek
to restrain trade and keep copper-clad aluminum out of the market. That assertion is absurd. Copper-clad aluminum products have been allowed in the NEC for decades. The opponents of ABA's amendments have made no attempt to restrict the use of copper-clad aluminum products for any uses already permitted in the code. And the NEC has welcomed their inclusion in the marketplace as already permitted.

Other wiring cable manufacturers, including Southwire, can manufacture copper-clad aluminum products. We have no interest in preventing these products from being used in household applications. We simply want to ensure the product is safe for its intended use. Focusing on the ABA's proposed amendments, panel 6's work was thorough. It reviewed multiple test reports from Southwire and other groups before making its decision. In a statement, panel 6 laid out an 11-point strategy for future testing of 14-gauge copper-clad aluminum and other smaller-gauge products clearly outlining what it wanted to see to ensure these products are
safe for their intended use before including them in the code.

We do not believe that panel 6's careful recommendations made to minimize risk of a home buyer should be overturned on this basis. These weak allegations of bias are not sufficient to impeach the signature amount of delivery process by panel 6's careful, technical scrutiny of substantial evidence. The truth is their allegations are baseless and they fail to undermine the robust process on the record before you.

Finally, the ABA alleges that opponents to their amendments are willing to fake test results to get their way. Southwire's test in an accredited lab shows substantial risk of 14-gauge copper-clad aluminum conductors overheating at the ampacities proposed by the ABA when installed in insulation. Other independent credited laboratories confirmed these results. Contrary to the ABA's allegations, Southwire's testing methodology was so clear that it was a guide for Copperweld's own test. And this testing
methodology could not conform to any testing standard because there's no standard test for conductors in insulation that currently exists. On the other hand, Copperweld's report, submitted after the second draft meeting, did not receive independent verification of their results.

We are happy to expand on the technical merits to Southwire's testing in questions and answers. Southwire maintains that the NFPA code-making panel here properly did its job in investigating these amendments and that 14-gauge copper-clad aluminum conductors should not be included in the code for power and lighting circuits until further tests can be done.

Thank you.

MR. GOLINVEAUX: Thank you. I'm going to open it up to questions from council.

Oh, I'm sorry. I thought --

MS. HUNTER: My apologies. There's a few minutes left. Chris Hunter with Cerrowire.

MR. GOLINVEAUX: Please proceed. I'm sorry.
MS. HUNTER: Thank you so much.

MR. GOLINVEAUX: If you can introduce yourself. I'm sorry.

MS. HUNTER: Chris Hunter with Cerrowire. Thank you. Just a couple of clarifying statements. As a member of Code-Making Panel 6 for many cycles, the issue that's before us, to me, is not about the metal. This is about allowing smaller branch circuit conductors in the NEC, smaller than we have ever allowed for branch circuit wiring. Since the 1897 NEC, we have limited branch circuit wiring to no smaller than 14-gauge copper. When copper-clad aluminum and aluminum -- well, when copper-clad aluminum was added in the 1971 code, it was 12-gauge copper-clad aluminum, which is equivalent ampacity to 14-gauge copper. So that has been our bar. We've said nothing smaller than that.

This proposal is to allow a smaller branch circuit conductor. And to do that, we have to make sure that it's safe in recognized installation. Now, things have changed since the very first code. We have different
construction methods. We have different requirements for thermal insulation. And Code-Making Panel 6 has looked at information presented over many code cycles about wiring methods in thermal insulation. Some of those reports date back to the '70s and the '80s. But more recently we have made changes to the NEC for wiring methods based on testing in thermal insulation. We have restricted the use of NM cable. We have restricted the use of MC cable, AC cable, and SE cable based on reports very much like the reports presented during this code cycle in the second draft because of the overheating concerns in thermal insulation.

This needs to be investigated. We need to make sure we come to the right conclusion, whether it's installation limitation or ampacity adjustment. Whatever the solution is, we have to make sure we have that information before we include it in the NEC.

Thank you.

MR. GOLINVEAUX: Thank you. Are we good? Okay. I'll open this up for questions
from council, please.

MR. KLEIN: David Klein, member of council. This is for Mr. Graser. If I understood what you were saying, please correct me if I’m wrong, the tests that you said were nonstandard gave the results for the 14 CCA but did not compare them to 14 copper; is that what you’re saying?

MR. GRASER: This is Peter Graser, American Bimetallic Association and Copperweld Bimetals. Yes, sir, I did say that. And, in fact, none of the four tests actually were comparative in nature. They were all nonstandard. And they’re basically fabricated. And one important point to note is that between -- and this is an important fact -- that between the final second revision debate in October of last year and the days before balloting reopened under checking, you know, with the NFPA staff so that -- so as not to violate any rules of conduct we submitted a test report that duplicated one of the test rates of the PCs. So it was done by Intertek, which was an independent test lab. And they
were contracted to witness this test that
duplicated this rig, you know, with the
insulation. But it was comparative in nature.
It was going to report both sides. And what
had basically come from the testing was that --
and, remember, Intertek is an NRTL. I mean,
they're independent, right. They -- they're
sworn not to lie. 14 copper proved to run
20 percent hotter than CCA 14 under the same
test parameters. But have no fear -- and
there's no inspector community worrying about
problems with 14-gauge copper. We have no
reports -- I sit on panel 6 as well -- we have
no reports from contractors that sit on our
panel saying that 14-gauge coppers aren't
enough. No. None of those issues. The
problem is the test rig. It's a bad design.
It was designed to make any wire, any size of
wire, any type of wire overheat.

MR. KLEIN: Just a follow-up question,
this is David Klein, member of council, to
Mr. Keeler. Would you care to rebut the
statement that the test did not present -- did
not compare one product to the other product?
MR. KEELER: Chris, do you want to --
I'll turn it over to Ms. Hunter, if I can.

MS. HUNTER: If I may. Thank you.

Chris Hunter with Cerrowire. 14-gauge
copper-clad aluminum and 14-gauge copper are
not comparable. To test those in opposition or
in comparison is -- it would be like taking 500
kcmil copper and 500 kcmil aluminum and saying,
oh, let's test them next to each other even
though we know that they have significantly
different conductivities. The comparable
conductive values would be 14-gauge copper-clad
aluminum and 16-gauge copper. There is
16-gauge copper available in the industry to be
tested.

Code-Making Panel 6 has asked that
that testing be done. They've asked -- given a
very, very lengthy statement on how the testing
needs to be done to test 14-gauge copper-clad
aluminum and 16-gauge copper. They also asked
for 14-gauge copper and 12-gauge copper-clad
aluminum to be tested in thermal insulation as
well.

The issue is with heating and thermal
insulation with small conductors. It's not one metal or the other. So there's no point in testing a 14-gauge copper against a 14-gauge copper-clad aluminum because they have different resistances and different conductivities.

So it's -- and there were no public inputs and no public comments to change the ampacity or the use of 14-gauge copper. So, to me, it's hard to understand why we even want to see 14-gauge copper compared to 14-gauge copper-clad aluminum because as a wiring cable person, there's no -- they don't compare. They're not substitutes for each other.

MR. GOLINVEAUX: I'll go to Cathy and I'll come back to you.

MS. STASHAK: Cathy Stashak, member of council. You had -- I forgot the lawyer's name -- Keeler. I'm sorry. I'm really horrible with names. Mr. Keeler, you had stated that several labs, accredited labs, had confirmed Southwire's testing. Do you have the name of those labs and were they present during the actual testing?
MR. KEELER: Dave, do you want to --

MR. WATSON: Thank you. Dave Watson with Southwire. First, a quick comment on the comment made by Mr. Graser earlier. If I'm not mistaken, the testing that he referred to that occurred after the second revision process was actually performed at Copperweld and that was witnessed remotely by Intertek. I believe he stated that it was actually performed at Intertek. It's my understanding it was actually performed at Copperweld. Furthermore, in regards to that, there were two test reports generated out of that. It appears to me it's the same data. It's really one test report that was published under two covers, if you will, one for Copperweld and one for Intertek. So it's just one test report actually.

In regards to the test labs that -- in addition to Southwire -- that did the testing, the Copper Development Association had initiated a test by Hampton Tedder, who is an accredited lab. Furthermore, Southwire utilized Cable Technology Labs. CTL. Their report should be in an exhibition file that we
sent that should be part of your package. So
you should have the Southwire test report
generated at our accredited lab facility. You
should also have the test report from CTL. And
I don't remember if there's another test report
in that or not so.

MR. KEELER: So the panel's statement
lists the five reports and presentations that
they took into account in this --

MR. GOLINVEAUX: David, I think you
had a follow-up question, I believe.

MR. KLEIN: If I can remember it.
This is David Klein, member of council. So
thank you for clarifying that 14 CCA is not the
same as 14 copper. Did the test mentioned by
the opposition include a comparison to any
copper products?

MS. HUNTER: Thank you. Chris Hunter.
The testing that was submitted after the second
draft panel meeting, I believe, did have some
testing with 14-gauge copper. At that point
there was nothing we could really do with it
because there were no PIs or PCs to adjust
14-gauge copper. It's been repeatedly stated
that the copper that they tested ran 25 percent hotter under the same test parameters. But that is not exactly correct. They were tested under different ampacities. So if I remember correctly, the CCA, the 14-gauge CCA, was tested under -- at 10 amps, and the 14-gauge copper was tested at 15 amps. Now, as to the relative difference, I think that's something that should be investigated. And if the Code-Making Panel 6 direction is followed for next cycle, we should get answers to those questions.

MR. BUSH: Thank you, Chair. Ken Bush, member of council. It's probably a question directed to Ms. Hunter. Before in your testimony, you said that the code-making panel requested that these tests be conducted with these materials. And my question is were you aware of the fact that the code-making panel, in addition to the results, was made aware of the standards of these tests and was aware of how these were going to be conducted with these different materials?

MS. HUNTER: I'm sorry. Could you
clarify which testing?

MR. BUSH: You asked that testing be conducted. I'm just curious as to whether the code-making panel was made aware of the standard of the test -- for the test in addition to results of the test?

MS. HUNTER: Thank you. Chris Hunter with Cerrowire. And there is no standardized test in the industry for testing ampacity or heat rise of conductors in thermal insulation. We do have precedent from the National Bureau of Standards, which, of course, now is NIST. And we have also precedent with reports that were submitted to the code-making panel for previous cycles. And Code-Making Panel 6, because there is no standardized test, went through and gave a very detailed list of parameters and testing conditions that should be followed to create that test with the request that this be performed by third-party laboratory preferably under the purview of the Fire Protection Research Foundation.

Did that answer the question, or is there --
MR. BUSH: Yes. Ken Bush, member of council, with a follow-up. As member of the code-making panel, as you said you were, was that panel convinced that the parameters were satisfied with the tests that were done?

MS. HUNTER: Thank you. Chris Hunter with Cerrowire. The majority of the code-making panel did vote during the second draft meeting to support that test protocol.

MR. BUSH: Thank you.

MR. GOLINVEAUX: Jim.

MR. QUITER: Jim Quiter, member of council. I'm going to change direction here a bit. You talked earlier in your presentations, Mr. Graser, about the makeup of Code-Making Panel 6 and some of the influences that you felt were there and held up your -- your graphic. Do you know for the people who are representing organizations whether they have directed votes or whether they're voting for their own organization?

MR. GRASER: Thank you, Council.

Peter Graser with the American Bimetallic Association and Copperweld Bimetallics. So, on
paper, obviously, it appears to be some balance on Panel 6, right? Many of these organizations do have directed votes. But in a case like NEMA, for example, and that's just one example, our competitors have five seats and a vice chair on the NEMA codes committee that directs votes for NEC. We have none. We're not on that panel. So, you know, they are issues with that. I mean, if anything, in the case of copper-clad bimetals in general, I think we need to look at our definition of what "balanced" is. Because the world is now a three-conductor world, aluminum, copper, and copper-clad aluminum. All three are legitimate, economic in this day and age. So, again, I think the definition of how the NFPA is balanced needs to be reviewed.

Does that answer your question, sir?

MR. QUITER: Partially. But it leads to a follow-up, if I may.

MR. GOLINVEAUX: Please.

MR. QUITER: Okay. So I guess that then leads to the question what -- if you feel -- I'm not going to use word "balanced" --
because it is balanced -- but if you feel it's unfair, what would you do to resolve that? And maybe a secondary part of that question is, for the other side, is do you see a similar imbalance in the discussion and how things are going in Code-Making Panel 6. But I'll start with you.

MR. GRASER: So Peter Graser, American Bimetallic Association and VP of Copperweld Bimetallics. Sir, that question honestly is probably above my pay grade to come up with a new definition of how to balance organizations outside of the NFPA that have voting rights on how panels, technical panels, like Code-Making Panel 6. If you would allow me, I could certainly submit some suggestions after I -- after I think about how that can be done. But, yes, I would encourage -- I would encourage, you know, some kind of a public input, if you will, maybe that's the wrong word, to come up with a fair system that deals with this world that we live in now that's a three-conductor world. Before CCA came back into the market because of high copper prices and the
continuing escalation of high copper prices,
there was no discussion about things like this
because the panel 6 was balanced in the old
world. So yeah. I think a reconstitution of
what it means to be balanced is probably a good
place to have a discussion.

MR. QUITER: Thank you.

MR. GOLINVEAUX: Okay. James
Golinveaux, member of council, for Mr. Graser.
You made a comment just a minute ago in that
answer that said that NEMA had five directed
votes on the panel. Are you specifically
saying that NEMA directed five of its members
or whoever they were representing to vote a
certain way?

MR. GRASER: Peter Graser, American
Bimetallic Association and Copperweld
Bimetals. No, sir. That -- I'm sorry if I
mis --

MR. GOLINVEAUX: I'm just trying to
understand it.

MR. GRASER: The codes and standards
committee at NEMA that decides how votes are
directed on panel 6 has five members. Five
members from panel 6 and also a vice chair. We
don't have representation on that panel. We
don't have a voice. If -- you know, there's 17
members altogether. But, you know, we're all
familiar with the idea that if there's a, you
know, a resolute group of members, there will
be some following of them just because of the
resoluteness of their position, right? So
that's the situation. We don't have a voice on
NEMA. And there are others that we don't have
a voice on.

Does that make it a little more clear?

MR. GOLINVEAUX: Yeah. And I hate to
dig into this too much, but I just want to
understand. When you're talking about there
isn't representation on NEMA, you're not
talking about the code-making panel; you're
talking about their representation on the NEMA
organization -- I'm trying to understand when
you're speaking to one versus the other.

MR. MELLO: Chuck Mello, cdcmello
Consulting. I'll try to help here. With NEMA,
there's many, many companies in NEMA, many
different groups and all that that represent a
wide spectrum of the industry. There's 17 members total representing those various entities on the codes and standards committee that do direct the vote. In that committee of 17 members, five are specifically codes and wire specialists there. And some of these are in the room today, including the vice chair. Because they are the wire and cable specialists in the committee, the committee tends to follow what the wire and cable specialists say to do. That's what we're saying.

MR. GOLINVEAUX: Okay. I'll let it go at that. Thank you. Any -- Rich, I'm sorry. I didn't recognize you earlier.

MR. GALLAGHER: Richard Gallagher, member of council, with a question for Mr. Graser. In the chart that you did share with us, you showed the relationship between several industry groups and the members of code-making panels. And I guess my question is can you help us understand if there's any observations or information that you may be able to share that indicates how this may have led to, let's say, a voting block or any kind
of actual action that may have influenced the outcome.

MR. GRASER: Thank you. Peter Graser, American Bimetallic Association and vice president of Copperweld Bimetals. So in the case of Code-Making Panel 5 or 6, we have a situation where, for example, we've already explained NEMA, we have no voice there. But IEEE, our competitors, have a recent past chair who's in this room of the codes committee. Again, in these committees, that's where votes are directed, right? We do not have a voice there. The Copper Development Association, our competitors have three seats on the codes committee. That's three seats from Code-Making Panel 6, right. I guess our invitation to the Copper Development Association got lost in the mail because we're not members there. Aluminum Association, our competitors have four seats. I'm talking competitors that -- of ours, wire manufacturers, that have votes on Code-Making Panel 6. Three of them do. One of them doesn't. But there are four members from The Aluminum Association that actually have a voice
on Code-Making Panel 6. We're not members of
The Aluminum Association either. So there's a
lot of influence that happens during the debate
that we have no control over. So that's a
short sketch of all of those votes. All of
those votes basically went in opposition of our
public inputs, 14 CCA.

MR. GOLINVEAUX: Jim.

MR. KLEIN: Jim Quiter, member of
council. In my previous question, I had also
asked the opinion of the opposition of the
fairness of the makeup of the committee. So I
was just hoping I could get that feedback as
well.

MS. HUNTER: If I may? Thank you.

Chris Hunter with Cerrowire. The expertise on
Code-Making Panel 6 from wiring cable
manufacturers does reside in the manufacturing
seats, as it should. And different
organizations are represented with directed
votes. With specific regard to the NEMA codes
and standards committee, Copperweld is a NEMA
member. And you have to apply to become a
member of that committee. I'm not aware that
anyone from Copperweld has applied to become a member of the codes and standards committee. So if they do in the future, that will be considered. There is a process for that. I can tell you from being on the CNS committee for about ten years now, it hurts to be in the minority. But it happens because you have different interests from all over the electrical manufacturing industry. And that's that way the process works. I've not observed a voting block. In the other organizations, there are directed votes on each of those. And to be a member company of the Copper Development Association and The Aluminum Association, you have to apply for membership in those organizations. I'm not aware if Copperweld has done that. I certainly have not received my invitation to be a member of the Bimetallic Association either, but I'm assuming you have to apply to become a member of that organization. So that's the way the process works. And the way that the members that represent these organizations are chosen is based on
expertise. I work for a wiring cable manufacturer. I've worked for wiring cable manufacturers for over 20 years now. I have significant experience as an engineer in different parts of the industry. I have significant experience in teaching and applying the NEC. That's why I'm on that code-making panel and Code-Making Panel 13. Not for any other reason other than that I understand how the process works and how wiring cable is manufactured and should be installed.

MR. GOLINVEAUX: Thank you. Randy.

MR. KRAUSE: Randy Krause, member of council. Just a question to Mr. Graser. I heard, or it's been pointed to, testing that's been conducted. Do you have any test that validates the use of CCS as your -- that you can point to.

MR. MELLO: Chuck Mello with cdcmello Consulting. If can I answer that for you. Yes. The bimetallics task group actually has done extensive testing basically setting up a system setup of circuit breakers, wire -- devices, and wiring devices in a controlled
laboratory environment in an independent laboratory. This was overseen by the bimetallic task group 14 members of it. It was also witnessed remotely. It was physical, but it was witnessed remotely by both the field representatives that were on the bimetallics task group and, ultimately, at the next meeting, by all the task group members that wanted to be present in that meeting with the testing going on. For your last question, there were people doing the testing and all that.

Two reports were issued. One was a standard heating report and one was a thermal report. The timing of those was because of the due dates for public inputs that the NFPA requires and beyond. The reports that were done as were stated between the second draft meeting and the report that had already started was done at the Copperweld facilities and witnessed by an NRTL. So they actually had an independent witness for that.

Again, the reason for two reports, the -- meet the balloting date. To meet that
due date, the first date tests were done,

witnessed, and issued by that NRTL on their
letterhead. And the completed report with all
the tests, 16 total tests, that were done going
that comparison of 14 copper to 14 copper-clad
aluminum and some 16 copper or equivalency.

And I want to be real clear here.
The equivalency is not looking at 14 copper and
14 copper-clad aluminum being equal. That is
not the contention ever. And it's about 14
copper-clad aluminum had an ampacity of ten
amperes, which on the stairstep of the tables
is exactly correct to step down one size or to
increase one size from what the copper is. And
the 14 copper was used because it was, as
stated, the smallest branch allowed today. It
is readily available and has been installed for
100 years and used.

So we all agree 14 copper in
installation work is okay. We needed a
yardstick. And 14 copper was the yardstick.
So we can measure performance of 14 copper-clad
aluminum, the new guy, against the yardstick.
And that's why the testing was done in the
second round testing that was done provided to
the panel at balloting time for them to
consider that 14 copper-clad aluminum ran
cooler than the 14 copper in every one of the
tests conditions that were done.

With regard to the panel's 11 points
that were asking to be done, I do want to note
that failed the ballot. That second revision
with that statement failed the ballot of panel
6. So that is not a consensus decision. In
our opinion, it is not consensus opinion of the
panel at this point. And it's a matter of
record that it not pass that ballot. Thank
you.

MR. GOLINVEAUX: Dawn.

MS. BELLIS: Dawn Michele Bellis, NFPA
staff. This question is to Christel or whoever
on this topic would like to answer. What was
the primary reason for CMP taking out
copper-clad of the second draft? Was it based
on the concerns of the thermal
insulation results, or was it something else
completely?

MS. HUNTER: Thank you. Chris Hunter
with Cerrowire. The primary concern was based on the reports that were submitted in the second draft. And those reports, multiple reports, showed that overheating was a concern when installed in thermal insulation. Based on that, 310.3(A) was modified to remove the allowance for smaller branch circuit conductors. And that included both 14-gauge copper-clad aluminum and 16-gauge copper, which was permitted by the code-making panel during the first draft. So during the first draft, both 14-gauge copper-clad and 16-gauge copper were added to the 310.3(A) and tables 310.16 and 310.17. When 310.3(A) was reverted, that removed the allowance for a smaller branch circuit conductors. Therefore, the ampacities for 14-gauge copper-clad aluminum and 16-gauge copper were removed from tables 310.16 and 310.17 to correlate the different parts of Article 310.

MR. GOLINVEAUX: All right. Suzanne.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff. This question is for Christel or Dave Watson. When the council formed the
bimetallics task group back at the end of the 2020 cycle, it was responding in part to some specific comments on the committee which focused on termination and connection points. This issue of insulation seemed to be a newer consideration. Why was that not part of the concern expressed back in the 2020 cycle when the panel initially gave its reasoning behind concerns for including copper-clad aluminum?

MR. WATSON: Dave Watson with Southwire. I was not or Southwire was not a part of the bimetallic task group. So Christel was and I'll let her address this.

MS. HUNTER: Thank you. Chris Hunter with Cerrowire. I was part of Code-Making Panel 6 during the 2020 cycle. I don't recall why that was not included in the statement. I believe it should have been, especially based on the actions that we took with the restriction for NM, SE, and -- I'm sorry -- SE, MC, and AC cable in the 2020 cycle. This concern was brought to the bimetallics task group. Unfortunately, it was during COVID and I had to do some independent testing. But I
did bring this concern to the task group based
on testing that I did and also testing that has
been done previous decades by other
organizations showing the concerns with
overheating of conductors in thermal
insulation. The bimetallics task group
deprecated to test that particular part of it.
And I think in part because there was no
standard test so they weren't exactly sure how
to proceed. So the bimetallics task group did
do testing at another electrical manufacturer
facility. I believe it was the Eaton facility.
And it was witnessed by members of the
bimetallics task group. But that did not
include any installation in the thermal
insulation. And since none of that testing was
submitted during the first draft, the testing
had to be performed by other parties to be
submitted as part of the second draft.

Did that answer the question?

MS. GALLAGHER: Yeah. But just a
point of clarification. So my question was
really why didn't panel 6 include that as part
of its comments? Because I think -- my
understanding was the bimetallics task group was responding in large measure to the comments from panel 6 during the 2020 cycle. So why was panel 6 not including that back in that 2020 cycle, the piece about insulation?

MS. HUNTER: Thank you. Chris Hunter. I would suspect it was just an oversight or it just wasn't part of the conversation. Usually there's limited opportunity to develop the panel statements and then modify them and adjust them. So I don't think it was specifically not included; it just didn't become part of the conversations, like terminations and other concerns.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff. Follow-up question to Mr. Graser. So I want to understand some of the claims you've made around membership of the panel. I understand that the panel presently includes in terms of manufacturers, the Copper Development Association, The Vinyl Institute, The American Bimetallic Association, The Aluminum Association, and NEMA. My further understanding is that NEMA, The Aluminum
Association, and Copper Development are -- at least are directed votes by those associations. So in terms of NFPA's process, what are your specific assertions around the influence that's being asserted on those members in the panel, understanding that you're looking for membership in other associations outside of NFPA. But with regard to this panel, what are the specific concerns that you have around membership?

MR. GRASER: Peter Graser, American Bimetallic Association and Copperweld Bimetallcs. So influencing directed votes, that's really where the issue is. And it's almost like vote packing. So if an organization that has voting rights on the panel is influenced by competitors to our -- then -- and we don't have a voice -- then it's basically a -- we're in the hole before the debate even starts.

And there's also problems with suppliers of -- for-profit suppliers to our six competitors on Code-Making Panel 6 that have been suppliers and in relationships for decades.
that, you know, we don't have influence over them because our account is so low. So there's a situation there. Becoming chairs of the NEC panels that make these types of decisions, direct these types of votes, is a generational thing. Ms. Hunter herself said that she's worked with NEMA for ten years. You know, we've been -- we've been NEMA members for two. But, you know, we're not codes and standards. There's a process for getting on codes and standards. And, you know, we're just not -- we're not just part of that.

So that's the issue. You've got outside organizations that have influence over votes on these technical panels that, you know, are restraining the public from products that are playing by the rules, scientifically proven track record, independent through the bimetallics task group that this council created or the decision to create happened in 2019. We're essentially outgunned in the process. And if you do look at the record, you'll see that there's a pattern there. You know, again, we're the newcomer. Our products,
you know, are safe, reliable. But we can't get through a panel.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff, with a follow-up question. So when an organization participates on an NFPA panel through a directed vote, I think the general understanding is that they would be influenced -- that vote is influenced by the members of the association they're representing. Is there some sort of undue influence or some particular concern about conduct that you're concerned about, or is it the influence of members of an association on their directed vote?

MR. GRASER: Peter Graser, American Bimetallics and Copperweld Bimetallics. The concern is numbers, quite honestly. And like I mentioned, coming up with a new definition of what balance is in a three-conductor world. It might work for, you know, wiring devices or, you know, splice connectors, you know, other parts of branch circuits, but it doesn't work for a newcomer in the wire industry. And so my appeal is partly to recognize that. To
recognize that, you know, things have changed. There's a new world. This council created a technical committee, a panel, a task group, if you will, to understand the differences between the standard 14 copper at 15 amps, the smallest circuit, and the suggested smallest circuit, 14 copper-clad aluminum at 10. It doesn't seem like it or might not, but in the electrical world, those are apples to apples. You would run a 15-amp lighting circuit with copper 14 just like you would 14 CCA at 10 amps. So it's apples to apples. That's how the whole parameter was set up.

So what you're seeing is a willful campaign to keep out a viable product from -- for example, an LED lighting circuit, that's what you're seeing. This is a corrupt -- corrupt process here.

Thank you.

MS. GALLAGHER: Follow-up question. What is corrupt? What is the process that was corrupt?

MR. GRASER: Let me rephrase that. It is an unfair process that employers position
their employees on organizations that have
voting rights or influence on panel votes on
balloting. That's what I'm talking about here.

There's a -- there are two problems with this
cycle. That's one of them. And then the other
one, of course, is the sham testing that took
place in the second revision debate that
influenced panel members. Information was
withheld at a critical time in the process to
influence the vote. And that's what this
appeal is all about. It's fabricated. All
right. Thank you.

MR. GOLINVEAUX: Dawn.

MS. BELLIS: Just to follow up a bit
on what you just testified. I'd like the panel
members or this side of the hearing to give me
a feeling about or give me your opinion on what
exactly were the concerns during the second
draft. Again, was it a fire safety concern?

What was the concern that caused the panel to
reverse action of the first draft?

MS. HUNTER: Chris Hunter, Cerrowire.

Yeah. Fire safety is the biggest concern
there. Any time you have overheating
conductors, especially hidden in concealed spaces, the concern is that the overheating will become so severe that it will degrade the insulation, the jacketing materials, and potentially create a fire and/or shock hazard. A fire hazard if it ignites combustible materials. A shock hazard if it degrades the insulation and the sheathing material on the cable itself and someone comes into contact with it, perhaps like someone working in that space.

MS. BELLIS: Can I follow up?

MR. GOLINVEAUX: Yes, please.

MS. BELLIS: Dawn Michele Bellis, NFPA staff. Follow-up question. So based on that fire safety concern, was there concern with the panel that the 14-gauge copper, and understanding they're not apples to apples, was there concern with its temperature, again, for the same reasons that fire safety -- there's fire safety concerns within the insulation.

MS. HUNTER: Chris Hunter, Cerrowire. I can't speak for the entire panel. We did not have that particular subject in front of us.
from either a PI or PC. From my perspective, I would like to see 14-gauge copper and 12-gauge copper-clad aluminum tested under the same conditions. I've been researching this. And I've found references, for example, in Fire & Arson Journal and previous studies that were done from governmental agencies that suggest that we should investigate small conductors in thermal insulation beyond just the new conductors that are being proposed.

MS. BELLIS: A follow-up. Dawn Michele Bellis. So to clarify, looking at what has been historically in the NEC and has been adopted, looking as those as well to confirm or dispel the facts of their safety efficacy.

MS. HUNTER: Chris Hunter with Cerrowire. Yes, exactly. Just to make sure that the changes in the building codes and the thermal insulation requirements, the changes in loading on branch circuits and within homes and other locations where these wiring methods are permitted, make sure that what we have allowed in the past is still suitable for today and doesn't pose any risk.
MR. GOLINVEAUX: Okay. Suzanne.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff. Christel, you mentioned that the panel has proposed inclusion of 16-gauge copper. What testing did the panel use to substantiate that inclusion?

MS. HUNTER: Chris Hunter, Cerrowire. No testing was deemed necessary. 16-gauge copper has been included in the NEC since the very first NEC. So there is significant field experience with 16-gauge copper in other applications. Flexible cords. Fixture wires. Controlled circuits. So we're very well aware of terminations and installations with the exception of thermal insulation which should be investigated.

MS. GALLAGHER: Follow-up question. So you mentioned earlier that copper-clad aluminum is also used in other areas of the code. So what makes this situation different in terms of that pattern you described that no testing was deemed necessary for copper?

MS. HUNTER: Chris Hunter, Cerrowire. 14-gauge copper-clad aluminum has never been
allowed in the NEC at any point ever. Until --
my apologies -- until the 2020 code when it was
permitted for control conducts and MC cables
and tray cable.

MS. GALLAGHER: A follow-up question.
So to clarify, is it allowed or it isn't
allowed? I'm sorry.

MS. HUNTER: It was put into the 2020
NEC. I don't know if it's ever actually been
manufactured or produced or installed. So it
could be -- it could be approved by UL as part
a listed MC cable or tray cable as a controlled
conductor, not as a branch circuit conductor.

MS. GALLAGHER: Would that be the same
for copper? The copper -- the 16-gauge copper,
it was also approved as a branch circuit?

MS. HUNTER: Chris Hunter, Cerrowire.
16-gauge copper has been approved for those
uses since the 1800s.

MR. GOLINVEAUX: James Golinveaux,
member of council. Just a question on the
balance. And you've used a couple of terms and
then changed them from corrupt to restriction
of trade. Help me understand how it got
through the first draft if the committee, in
your opinion, was so stacked or so much against
copper-clad, how did it get approval in the
first draft before new information came in with
the second draft if the balance was so off in
your opinion?

MR. GRASER: This is Peter Graser. American Bimetallic Association and Copperweld
Bimetallcs. The only two votes against the
PIs in the first draft came the Copper
Development Association and The Aluminum
Association. The vote was 12 to 2. The vote
in the public input stage is a vote when
especially the data from the bimetallics task
group was reviewed by the panel. And as we had
mentioned, that information was solid. It was
comparative in nature. It was scientifically
based. It was a third-party lab. There were
13 members of bimetallics task group that
oversaw that test. There was a member from UL.
There was a member from ETL. Members from the
CEA and The Aluminum Association. Mr. Mello
was a member. I was a member. Branch circuit
experts like Tom Koninsovi(ch phonetic), he was
a member. And so these were credible people and this was a credible study. So in the first revision, the chips are not down, right. You're reviewing the data and you're coming up with first draft text. When the chips are down, that's when the knives come out. That's when you realize -- that's when they realized that something has to be done. To come up with a series of four tests basically in lock step that showed the same thing and withheld information on copper right at the most critical time during the debate in the second revision withholding information on copper that showed that it overheated 20 percent more than the test of, you know, 14 CCA for that same application. Again, lighting circuits, right. Big, big market.

So they have the test rigs built. Why didn't they just test 14 and report it? They didn't because they wanted to confuse the panel. That's exactly why they didn't. And the vote ended up 7 to 7, right. So, I mean, I've -- I'm probably using terms that you might not hear all the time. But in the second
revision, they circled the wagons, they got the influence brokered, and that's how they did it.

Does that answer your question, sir?

MR. GOLINVEAUX: Good enough for me.

Thank you.

Are there any further questions from council? Seeing none, I would like to offer you both five minutes to summarize your appeal and your arguments. So please proceed.

MR. GRASER: Again, Peter Graser, president of the ABA and VP of Copperweld. A validated alternative has been explicitly denied inclusion into the NEC by commercial interests that oppose it. The violators took two paths. One, commercial competitors influence balloting by imbedding their employees within multiple associations that have voting rights on panel 6. They persuaded those associations to direct their votes to their positions. Most members of the NEC committees at these organizations are disinterested in wiring cable. They could care less. So they vote along with the flow or however the powers are being brokered. We've
all seen this type of thing. Most times these organizations follow the voices of those members with the loudest voices, the longest tenure, or of a resolute group of members promoting their position.

The following is an example -- and some of this is old information -- the following is an example of the unfairness at organizations with voting rights on panel 6. NEMA. Our competitors have five seats and a vice chair on the NEMA codes committee where directed votes are decided. We have known. No opposing voice. IEEE. Our competitors have a recent past chair of the codes committee -- again, where directed votes happen -- who is still very active in the process there. We have no one. Copper Development Association. Our competitors have three seats on their codes committee. We have none. The Aluminum Association. Our competitors have four seats on their committee. None. UL LLC. This dynamic is a bit different, but the outcome is the same. UL LLC is a for-profit business and is a major long-term vendor of listing and
laboratory services to our six competitors on panel 6. Millions of dollars per year in trade between them. Strong relationships over decades. To UL, our pitiful account is the lesser --

All of these organizations have votes on panel 6. All have been influenced. When a vote really matters and the chips are down, the bimetallics industry is outnumbered 5 to 1 before the debate even starts. And, of course, the clearest violation, number 2, the sham test reports in the second revision debate by a coordinated group of competitors that clearly violated the guide for conduct of participants. They withheld vital information from the technical panel at the most critical time in the process. They did it for their employer's market share and to keep 14 CC out. These two factors does not address or continue to tip the scale from the public interest. It might be balanced, but it's unfair.

By design it should be a rare occurrence that the council grants appeal that overturns the work of a technical panel. Only
in the defense of the integrity of the process
itself should it be one. But this is one of
those rare cases. Granting this appeal will
send a clear message to all panel participants
that panels cannot be duped and the process
cannot be gained. Thank you, Council.

MR. GOLINVEAUX: Thank you. And who
wants to give the final speech?

MR. KEELER: I'll have two quick
comments as well. This is Tim Keeler with
Mayer Brown law firm on behalf of Southwire.
As you heard today, the ABA is just making wild
accusations. Allegations and violations of the
NFPA regulations. Using inflammatory language,
illicit, sham, duped, and asked that valid test
is ignored. Testing that addresses the
relevant use of 14-gauge copper-clad aluminum
in insulation is not included. There's no
allegation of unexplained action by the panel
unlike the last hearing. The panel's
recommendations and underlying reasoning is
clear. The record underlying it is
substantial. And under the guidance of panel
8, it determined its views is clear and well
reasoned. It calls for testing of both 14-gauge copper-clad aluminum, 16-gauge copper, and smaller gauges as well. We think that this record that should easily be upheld.

MS. HUNTER: May I? Thank you. Chris Hunter with Cerrowire. Listening to some of the comments today, it sounds like being involved and participating in the codes and the standards process is somehow a bad thing. And I don't think that it is. Many of us serve on many committees and we bring that knowledge to the different organizations and the different codes and standards development processes.

There is no reason to think in this case that the fact that we have representatives from the Copper Development Association, The Aluminum Association, and the Bimetallic Association, one from each association on the panel that is most concerned with these conductors is somehow unfair. And the other comment that I would like to address is that somehow there's an assertion that the chips were down. But if you look at the results of the first draft, 16-gauge copper was approved
by Code-Making Panel 6 along with 14-gauge copper-clad aluminum. There was comparity. And when we got to the second draft, the concerns for overheating were applied to both equally. Thank you.

MR. GOLINVEAUX: Okay. Thank you. As we conclude the hearing, let me inform you as to what happens next. The council will deliberate and reach its decision in executive session. Once the decision is made, that decision, including the background or any other information the council believes relevant, will be prepared by NFPA staff and published by the secretary of the Standards Council on the Standards Council website www.NFPA.org/SC2020 and in accordance with the regulations governing the development of NFPA standards.

Additionally, the decision will be sent to appellants and the chair of the responsible committees directly. The official opinion or decision of the council is that as published by the secretary and no other communication shall be considered the council's decision or position. Any questions regarding
the decision should be addressed with the secretary.

On behalf of the NFPA Standards Council, I'd like to thank all of those who participated in today's appeal hearing. Your involvement, as well as the stakeholders', is important to the NFPA standards development process. This hearing is now ended. Thank you.

HEARING ON 22-8-5-AA-1

MR. GOLINVEAUX: We are moving on to the related agenda item number 22-8-5-AA-1 in regards to NFPA 70, table 310.16, CAM 70-128 and with the related -- see the related appeal of 22-8-5-1.

MR. GRASER: We were understanding that that was wrapped into this debate here as --

MR. GOLINVEAUX: I'm sorry. Say that one more time.

MR. MELLO: Mr. Chair, is this item already discussed as part of the previous appeal, or is this for appeal of copper-clad aluminum today? Apparently it shows two line
items because one of those items failed ballot in the annual meeting one past, the annual meeting, and it failed ballot committee. So it looks we have two lines, but it’s one appeal.

MR. GOLINVEAUX: Bear with us one second. So with this on the agenda, we're looking for a confirmation from the appellant that 22-8-5-AA-1 would be a similar decision by council to 22-8-5-Y and you would be willing to accept that?

MR. GRASER: Peter Graser, ABA, Copperweld Bimetallics. Yes. I'll make your job easy.

MR. GOLINVEAUX: Any dissension from --

MR. WATSON: That's acceptable to Southwire.

MS. HUNTER: And Cerrowire.

MR. GOLINVEAUX: Okay. Thank you.

That was our fastest one. Moving on.

HEARING ON 22-8-5-J

MS. GOLINVEAUX: This hearing is related to the agenda item number 22-8-5-J in regards to NFPA 70, Section 250.62, CAM 70-61.
At this point, I will ask for recusals of council.

MR. REISWIG: Rodger Reiswig, member of council. For the record, I am recusing myself on this agenda item, and I will not participate as a member of Standards Council in the hearing, deliberations, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair. John Kovacik, member of council. For the record, I am recusing myself on this agenda item, and I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. GOLINVEAUX: Thank you, gentlemen. So I'll go through the self-introductions here. Mr. Graser.

MR. GRASER: Yes. Peter Graser, ABA and VP of Copperweld.

MR. MELLO: Chuck Mello, cdcmello Consulting. I am sitting here to assist with questions only.

MR. GOLINVEAUX: Okay. And I don't see anyone sitting to oppose the appeal. So,
Mr. Graser, please begin by introducing
yourself and proceed with your opening
statement in support of your appeal.

MR. GRASER: Peter Graser, president
of ABA and vice president of Copperweld.
Copperweld is a business that, like the NFPA,
has carried on its mission for over a century.
A lot can be learned in 100 years. For
example, in a relatively short span of
66 years, humanity took a flying machine in
Kitty Hawk, North Carolina that was less
sophisticated than the common powered bicycle
of today and from that foundational experience
created machines that could not only fly people
across oceans, but could also land them on the
moon in only 66 years. No doubt standard
setting behind the scenes played a -- in that
pace. At the turn of the last century, when
the men and women of the early days of the NFPA
were laying down the bedrock experience on the
rules of conduct, regulations and processes was
necessary to build reliable standards, the
founders of Copperweld began to build their
knowledge of electrical grounding and the
nature of fault current. Our company invented the copper-clad ground rod in 1915, which was then a cladded product rolled in a mill from a poured bimetallic billet. The center of the billet's mold held molten steel and the copper was poured around it only after the metal had hardened. So we started making ground wire from copper-clad steel, or CCS as it's known, a few years later. We drew wire from rod, rolls rolled in the very same bimetallic billet. Since then we shipped literally millions of tons of CCS wire and cables to electrical utilities around the world. All around to the very utility systems that bring AC power to your home and to your business. Of course, technology evolves and our process and understanding of fault current improved with time. But as our nation's space program can attest, a lot can change in less than a century. 66 years.

So the fact that after 107 years Copperweld still makes CCS ground wire and cable for grounding is a testament to how well the product works within AC power
installations, its equipment and the connectors that terminate it. The grounding of buildings is not as different as utilities as some would lead you to believe. So I apologize for the history lesson. You probably needed the break and world history to help you out. But it should be relevant to this discussion.

At this point, allow me to state a few facts concerning this appeal. CCS wiring cable for electrical grounding has been standardized for many decades by foundational standards such as ASTM and IEEE. It's widely used in electrical utilities worldwide. CCS is referenced by name in the NEC Article 800 for use as a grounding electrical conductor, the grounders we are here for today. Here they ground electrical installations for telecommunications equipment. CCS is not referenced at all by Article 250 in the NEC, which is under the purview of panel 5. Article 250 is a general grounding article in the main body of the code. Most AHJs that regulate grounding are used in Article 250. So CCS is effectively kept out of the market.
Proposals to add CCS to Article 250 were made in cycles 2014 and 2023. Both times the proposals failed first revision. And the '23 failed to even reach the ballot in the first revision. In 2014, the panel decided that lack of technical substantiation as the reason for rejecting the proposals. The fact that the CCS conductors have been grounding electrical utilities for decades was given no credence. In '23, despite submitting an overabundance of very relevant technical reports and studies drawn from a century of experience in the field, insufficient or inadequate technical substantiation was given for a reason to reject all -- and this is important -- 24 proposals. Grounding conductors removed by theft pose a serious threat of shock and electrocution to the public, be that installed from a utility pole or from a shopping plaza, under the purview of the panel 5.

The proposals highlighted this fact. CCS 40 percent is a very effective depth component. It -- depth by its low scrap value
and high shear strength. If they let you undercut it before their arms break, there's no value in that. Our utility customers state this message over and over again. And it gains application the higher the copper prices get. CCS 40 percent is the highest grade of CCS manufactured by Copperweld. And CCS 40 percent was the only grade submitted in this cycle for all of these applications.

Finally, copper is extended at 40 percent CCS is the lowest cost alternative for grounding in times of high price copper like today. So what can we conclude from these facts? For one, panel 5 has dismissed a century of history as well as the technical merits of copper-clad steel. Two, many of the panel's committee positions point to lack of understanding of materials of the nature of fault current magnitudes and durations pertinent to grounding electrical conductors.

In the first revision of this cycle, the recommendations and the task group assigned to debate the proposals quashed any broader panel debate by design. The task group's
opinion leaders represent organizations whose positions opposed bimetals for commercial reasons. That's suspicious.

For a technically proven material like copper-clad steel to be effectively killed at the public input stage in two separate cycles six years apart, which would have been so widely used by the electrical utility industry, this points to a -- I won't say it -- unfairness. On paper the panel might appear balanced, but its actions towards 40 percent CCS copper-clad steel demonstrate otherwise.

I would like the council to consider a voting membership for the America Bimetallic Association on panel 5. In addition to acting to accept the text that's written in CAM 70-61. This will be the first small step towards correlating CCS for grounding of all NEC articles. Remember, it appears already in the NEC, Article 800. These actions will both broaden the debate on panel 5 essentially testing it's balance or fairness as well as give AHJs, the people we really are serving, a tool to defend their municipalities against
theft beginning next year.

   It's pathetic when a copper scrap
within a grounding electrical conductor is
worth more to a thief than a life lost to
electrocution due to pilfered ground wires.
It's especially sad when the proven material
with a long track record of excellence in
performance against theft is excluded from an
entire market by the recommendations of the
powerful few and can't even make a ballot in
the first revision. Something needs to change.

   With such obvious benefits, panel 5
should want CCS in our Article 250 in
buildings. How could it not work? It's worked
outside and underground in buried soil for over
a century. So I ask that you grant this appeal
and that you take a small step today to accept
it so that the AHJs may take a giant leap next
year towards protecting the public from the
hands of thieves. As our nation's history of
men in flight has proven, the first small
courageous step can make everything possible.

MR. GOLINVEAUX: Thank you very much.
Not having anyone opposing the appeal, are
there any questions from council?

   MS. STASHAK: Cathy Stashak, member of council. So by voting membership, you're specifically asking to be able to have a seat on CMP 5 and not a directed vote? Or can you clarify what you're asking?

   MR. GRASER: Peter Graser, American Bimetallic and Copperweld. Yes, ma'am. We're asking for a vote membership on panel 5. That would be a voting member and an alternate. And we've already applied for that -- that seat.

   MR. GOLINVEAUX: I'm going to ask a quick follow-up to that. You've applied. Have you received an answer? I probably have the record, but just to --

   MS. GRASER: No, we have not. No, we have not. Peter Graser, American Bimetalllics.

   MR. GOLINVEAUX: Okay. Thank you.

   MR. QUITER: Mr. Chair, for the record, it is on our agenda for later in this meeting.

   MR. GOLINVEAUX: Okay. Thank you. I knew there'd be a record. Ken, you had your hand up.
MR. BUSH: Thank you, Mr. Chair.

Kenneth Bush, member of council. I think, Mr. Graser, you made several indications that the proposal failed to make ballot. Was that because of the fact that it didn't receive an affirmative vote in the meeting by the members of the committee, or was it a failure to the system?

MR. GRASER: Peter Graser of American Bimetallic and Copperweld. It was the first. It failed to make ballot. The task group recommendation was that it be rejected. All -- I believe there were 17 public inputs followed by, you know, a set of public comments. And but 17 public inputs and in every -- in every case, the recommendation by the task group was to reject it. And the committee followed. There wasn't a very robust debate. That upset me and disturbed me, that a material with these qualifications couldn't -- couldn't receive a more substantial debate.

MR. BUSH: Thank you.

MR. CROWLEY: Michael Crowley, member of council. Did you follow up for the second
revision with the public comment on your first submittal?

MR. GRASER: Peter Graser, American Bimetallics. Yes, we did. There were, let's see, I guess, eight. I believe there were eight public comments. Twenty-five proposals in total in this cycle.


MR. GALLAGHER: Richard Gallagher, member of council. The question is once again there's a chart provided with this appeal showing relationships between industry organizations and members of the panel. And I just wanted to clarify from you, is it a case where you feel there is some kind of an organized effort that is at work here, or is it more a case where you feel that this request to have membership on the CMP would actually be the solution that you're looking for rather than --

MR. GRASER: Peter Graser, American Bimetallic Association and Copperweld. It's more of a lack of representation. It's -- the
way the system works now is not conducive to
the introduction of a alternative metal like
copper-clad steel. And the organizations that
have votes on panel 5 that control the fate of
copper-clad steel for grounding have members
that are coalesced together that sort of form a
resolute group. And they convince people on
those code-making NEC, you know, committees to
vote a certain way. They persuade them to
their position. I call it power brokering. I
mean, that's a word that I use. But they are
influenced and, you know, that's how this
situation works. So, like I said, they've
made -- probably are balanced from the
definition that you have now. But in the way
it's working for bimetals, it doesn't seem so.

MR. GOLINVEAUX: David.

MR. KLEIN: David Klein, member of
council. You mentioned there were 17 PIs and
the task group recommended against all 17.
Could you clarify, did you submit all 17, or
were they from various submitters?

MR. GRASER: Peter Graser, American
Bimetallic and Copperweld. I submitted 17.
They were my PIs as a member of the American Bimetallic Association and as Copperweld.

MR. GOLINVEAUX: Thank you. Are there any -- Jim.

MR. QUITER: Jim Quiter, member of council. In our documents that I presume you got, there is a sort of summary of what happened at the committee level. And one thing it says is that the task group contains members of several groups. It also included a former member of CPM 5 who's currently working as a consultant for the appellant, which I gather is you. And was that you, Mr. Mello, who was part of that task group?

MR. MELLO: Chuck Mello with cdcmello Consulting. Yes, I was a member code panel 5 for 21 years. Upon my retirement from UL, I was off the panel because of change of employment. But I was allowed to be on the task group during the 2020 code because of my past experience. Again, if we didn't be made into a task group, then the collusion of the task group majority was to reject the public inputs and public comments with the panel --
MR. GOLINVEAUX: A follow-up.

MR. QUITER: Since you were there, did you feel it got proper discussion before the vote went the negative direction, or did you feel it was slipped over?

MR. MELLO: I believe there was robust debate. I believe that there were points that were made about that the task group made conclusions that were really weren't substantiated in the task group. As for certain aspects that they included in the panel statement, I objected to those. And in my -- against those aspects there. So I do believe there's some preconceived notion with the task group for some of the members.

MR. FOISEL: Jeff Foisel, member of council. The same articles that you just referred to also said that the CMP was looking for no technical substantiation on the use for grounding this application proposed on the telecommunication side. What technical information was provided?

MR. MELLO: So I'm clear on the question, sir, this was the technical -- I'm
Chuck Mello with cdmello Consulting -- the technical information being provided in the public input or provided from the communication? I'm unclear.

MR. FOISEL: Yeah. This was looking at the task group's input. And the CMP's statement was that it reaffirms that there was no technical substantiation that was provided in the expected conditions of use. The copper layer does not laminate the steel course fitness and strengths sufficient to prevent failure.

MR. MELLO: There was test reports provided that were done by an independent testing laboratory out of a region of Canada showing the viability of the copper-clad steel compared against copper. There was information provided from the ASTM standard for the manufacturing of copper-clad steel and it specifically addresses lamination. There was a test required. Actually, samples of the material were provided to some of the task group. Again, one of the unfortunate factors of COVID was we could not meet in person so
were doing this all virtually, trying to send a
sample to somebody and then have them handle
it. And in all efforts -- we did make an
effort to do that. There are one or two
individuals who were concluding their opinion
on public samples as opposed to being able to
present it to the panel.

MR. GRASER: I would like to add
that --

MR. GOLINVEAUX: State your name
again, please.

MR. GRASER: Peter Graser, American
Bimetallic Association and Copperweld
Bimetals. I'm trying to remember exactly
how many tests that we submitted with these PIs
and PCs. This was definitely on record. But
we submitted corrosion tests. If they had a
question about corrosion, we gave them a
50-year study of copper-clad steel underground.
GECs don't go underground. They connect to a
ground rod, you know, 18 inches off the ground.
So 40 percent copper-clad steel this 50-year
study was 40 percent copper-clad steel under
conduction purpose under a substation. And we
presented that information.

And we've submitted data on high
frequency -- as Mr. Mello suggested from a lab
in British Columbia that basically mimics
lightning, the power that a lightning strike
would have. And we tested again comparatively
the same size copper against copper-clad steel
and presented that.

And, by the way, copper at 25,000 amps
blows up. And copper-clad steel, although it
gets red, it stays in place. So we submitted
that. We submitted low conductivity reports.
And we also submitted some testing to UL
standards.

Mr. Mello, can you recall any of
those?

MR. MELLO: No. The testing of the UL
standard was called out. And one of the
comments of the panel was that the testing
current that we used did not correct for
copper, trying to make equal with copper.
Again, we're trying to provide alternative as a
bimetal conductor, not as a fault current
carrying wire.
MR. GRASER: Peter Graser, Copperweld, ABA. I have made a comment that, you know, there was a lack of understanding or curious responses as to the understanding of fault current for a GEC and that, you know, the panel members didn't understand the magnitude or the duration of fault currents that affect GECs. And these are all high-frequency currents.

We also submitted data for low-frequency currents, you know, 60 hertz stuff, that, you know, might have a little leak or whatever. But those are not really wires behind the GEC. You have a GEC to ground your system, to give it earth base. So there was a curious misunderstanding. And all these people are brilliant. So when curious misunderstandings happen, I start getting suspicious.

Mr. Mello, anything else?

MR. GOLINVEAUX: Okay. Thank you for covering that question. Are there any -- yes, Suzanne.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff. Mr. Graser, in your opening
comments, you mentioned that panel 5 has addressed this particular topic in Article 250 multiple times. I don't see a record of PIs on this in Article 250, copper-clad steel, in the 2020 cycle. Can you please explain what you meant by that.

MR. GRASER: Peter Graser, American Bimetallic and Copperweld. If I misspoke, I apologize. It's the 2014 cycle. So the 2014 cycle and the 2023 cycle, this cycle. Mr. Mello was on the Code-Making Panel 5. Let him --

MR. MELLO: Yes. Chuck Mello, cdcmello Consulting. Yes. In the 2014 cycle, there were public inputs submitted to panel 5 for copper-clad steel. Panel 5 rejected those with a substantiation -- insufficient substantiation asking for additional data. And that cycle was not provided with any kind of comment stage on that point. And then the new PIs came in 2020 from Mr. Graser which different individuals submitted there and with all the public comments in the 2014 cycle.

MR. GALLAGHER: Suzanne Gallagher,
NFPA staff. So I want to go back to the membership issue that you were raising. So you mentioned that there are many members on this panel that have influential voting in multiple organizations. It's not clear to me from your written submission what's the particular specific concern around the particular panel members at NFPA.

MR. GRASER: Okay. Peter Graser, Copperweld and American Bimetallic Association. So this is sort of the chart that shows panel 5, panel 5 members, and how they interconnect. And I believe there's certain organizations --

MS. GALLAGHER: Can I just -- this is Suzanne Gallagher. Can you just explain influence. It looks like there may be members with those associations. But can you explain what you mean by influence.

MR. GRASER: So the people on Code-Making Panel 5 that are members of these organizations are known as experts in grounding, right. So they're already coming into these organizations as the knowledge, right, as the people to listen to. Add tenure
and, you know, numbers on top of that and you get a situation where you can -- you can grab the disinterest vote just because they don't care about wiring cable. They'll just go along to, you know, be your friend or get a favor down the road.

So that's what I mean by influence. These members on Code-Making Panel 5 that belong to these organizations go into those organizations already the experts. And when an expert walks into the room, you know, the tendency of human beings is to follow the direction of that expert, especially if they're well known. That's what I mean by "influence." Again, by the rules, it looks like that's balance. But when it comes to bimetals, a newcomer to Article 250, it's not working out. It's hard to get to the cycle.

MS. GALLAGHER: I do have a follow-up question. Suzanne Gallagher, NFPA staff. Are there -- are you suggesting there are members of panel 5 who are not interested in the subject matter or don't have expertise to be on panel 5?
MR. GRASER: Peter Graser, American Bimetallic and Copperweld. I would say disinterested. There are some -- I would say the opinionators are disinterested. Their motivation, I think, I've made clear. There are also some that, on panel 5, that might not understand the exact nature of the fault current that goes through a GEC, right. They might have expertise somewhere else, right. They might be contractors that, you know -- I'll give you an example. I mean, I deal with contractors all the time. That's our primary base. If you go and ask ten contractors where 60 hertz current, 60 hertz that controls all this power, where it runs, I guarantee you that eight of the ten will say, oh, it runs on the skin. No. 60 hertz power runs through the core of a conductor. So there's a lot of misunderstanding out there about the nature of electricity, especially the nature of fault currents. And so it's not inconceivable that there are people that sit on panel 5 right now that don't understand the basics of what we're talking about. So they cede to the
opinionators.

MR. GOLINVEAUX: Cathy.

Q. Cathy Stashak, member of council. Do you have any examples of CMP members accepting favors for their votes?

MR. GRASER: Peter Graser, American Bimetallic and Copperweld Bimetallcs. No, I do not.

MR. GOLINVEAUX: Okay. Are there any further questions from council? Not seeing any, you have five minutes to summarize your support of your appeal.

MR. GRASER: Thank you. Peter Graser, president of ABA and vice president of Copperweld. As I've made clear today in my two appeals, one for copper-clad aluminum and one for copper-clad steel, it's a very tough road to home for bimetals in the NEC process. Two different grades of bimetal and applications that cannot make it through this process despite both having been proven safe and reliable by their performance throughout history as well as from legitimate scientific inquiry. How is it possible? Where is the
problem? In the case of 14 copper-clad aluminum, it's clear that the problems in this cycle stem from violations of the guide for conduct of participants in addition to a continuing commercial imbalance on panel 6.

But in the case of the copper-clad steel for grounding, the problem is singular. A panel imbalance or unfairness, let's define the word however we'd like, despite the appearance of none, there is no valid technical argument that 40 percent copper-clad steel can't be used as a grounding electric conductor inside of buildings. After all, it already appears in the NEC as one. It's been used as such by utilities since the early days of last century. Just not in Article 250 where it really counts for the public.

What is lacking is a powerful voice on the panel to make sure that the message gets heard. And as I explained in my previous appeal, competitors to bimetals have embedded their employees over multiple associations with voting rights on technical panels. This amplifies their influence over balloting. They
convince disinterested members of their associations in NEC committees to direct votes against bimetal proposals or, by the way, any others that threaten them. They also persuade commercial allies to their positions.

Suppliers, for example, that might have voting rights on technical panels.

In my written appeal for this case, I've also included this chart of how power is brokered. The actors are primarily the same as they are in the 14 CCA case. Copper and aluminum manufacturers that compete against bimetals do not want this product to crack into the building and construction market. It poses an enormous threat. They will pull every string to kill it. But half a billion people -- and I used to represent all of Latin America -- living within NEC-regulated municipalities, and most of them are, throughout the Americas, shouldn't have to be exposed to electrocution due to a stolen ground wire simply because a few task group members say that you'll have to prove it to be more. Better luck next cycle. So where does it stop?
So members of the council, I ask that you feel my frustration, but with clear eyes grant my appeal. Only you can stop this. The process can still work for this cycle if you step in. Your action will send a clear message to those participants whose mission is to stack the deck. It must stop. Thank you.

MR. GOLINVEAUX: Thank you. As we conclude the hearing, let me inform you as to what happens next. The council will deliberate and reach a decision in executive session. Once the decision is made, that decision, including the background or any other information council believes relevant, will be prepared by NFPA staff and published by the secretary of the Standards Council on the Standards Council web page, www.NFPA.org/SC2022, and in accordance with the regulations governing the development of NFPA standards.

Additionally, the decision will be sent to the appellants and the chair of the responsible committees directly. The official opinion and decision of the council is that
published by the secretary and no other
communication shall be considered the council's
decision or position. Any questions regarding
the decision should be addressed to the
secretary.

On behalf of the NFPA Standards
Council, I want to thank all of those involved
who participated in today's appeal hearing.
Your involvement, as well as the stakeholders',
is important to the NFPA standards development
process. This hearing is now ended. Thank you
very much.

MR. GRASER: Thank you, Council.

MR. GOLINVEAUX: We are going to take
a one-hour lunch break. We will convene at
three o'clock.

(Recess taken.)

MR. GOLINVEAUX: Okay. Good
afternoon. My name is James Golinveaux. It is
my distinct pleasure as the chair of the NFPA
Standards Council to welcome you. I am going
to call this hearing to order. In a moment, I
want everyone to introduce themselves by
stating their name and affiliation. Before we
do that, I want to remind everyone that we have a stenographer in the room with us today who is recording these hearings. So from this standpoint, it is important that each of you, when you make your remarks, state your name and affiliation so the stenographer may accurately capture the information for the record. In addition to those who will be speaking, if you haven't already done so, forward your name as you wish it to appear in the record as well as your affiliation to Mary Maynard at www.mmaynard@nfpa.org so that we can spell your name correctly in the record.

Appeal hearings are scheduled for today, August 10, 2022. And the plan is to move from one hearing to the next with some breaks throughout the day as necessary. If we can't get through all of the hearings today, we will start again tomorrow morning, August 11, and will continue until we conclude the hearings.

We'll start with the introduction of council members followed by the NFPA staff. And, finally, I recognize the appellants and
other guests planning to speak for a specific appeal to themselves. Following breaks, I will go through the introduction again and ask for introductions of those who have joined since the start of appeals this morning. If you're merely attending as a guest and not speaking on any items, please be certain to sign with Mary Maynard at the table outside the hearing room.

We'll begin by the introduction of council. Jim, I'll start with you.

MR. QUITER: James Quiter, member of council.

MR. GALLAGHER: Richard Gallagher, member of council.

MR. CROWLEY: Michael Crowley, member of council.

MR. KOVACIK: John Kovacik, member of council.

MR. REISWIG: Rodger Reiswig, member of council.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff.

MS. BELLIS: Dawn Michele Bellis, NFPA staff.
MR. FOISEL: Jeff Foisel, member of council.

MR. KRAUSE: Randy Krause, member of council.

MR. KLEIN: David Klein, member of council.

MS. STASHAK: Cathy Stashak, member of council.

MR. BUSH: Kenneth Bush, member of council.

MR. GOLINVEAUX: I'll move to staff. I'll begin with Mr. Dubay.

MR. DUBAY: Christian Dubay, NFPA staff.

MR. CHASE: Barry Chase, NFPA staff.

MR. DUFFY: Chad Duffy, NFPA staff.

MS. VECCHIARELLI: Tracy Vecchiarelli, NFPA staff.

MR. BAKAJ: Patrick Bakaj, NFPA staff.

MS. CASSELS: Nicole Cassels, NFPA staff.

MS. GREENFIELD: Amy Greenfield, NFPA staff.

MR. HOLLAND: Ken Holland, NFPA staff.
MR. HANNAH: Corey Hannah, NFPA Staff.
MR. HOHENGASSER: Erik Hohengasser, NFPA staff.
MR. SARGENT: Jeff Sargent, NFPA staff.
MS. SISCO: Jennifer Sisco, NFPA staff.
MR. GOLINVEAUX: Okay. Thank you. And we'll introduce the guests. Let's start on the front row. Dave, it's going to be you, and we'll work our way through the --
MR. WATSON: Dave Watson, Southwire.
MR. MOELLMANN: James Moellmann, Maxivolt.
MR. WINGATE: Chris Wingate, Maxivolt.
MR. ANDRE: Joe Andre, consultant.
MR. MELLO: Chuck Mello, cdcmello Consulting.
MR. TIMMONS: Bill Timmons, Electrical Wiring Systems.
MR. LEHR: Ed Lehr, ACCA.
MR. KOFFEL: Bill Koffel, Koffel

MR. GOLINVEAUX: Okay. From a process standpoint, the general approach we will take today is to allow ten minutes for each side to make opening remarks. And then we'll open the floor to questions from council members. For those of you who have requested and granted additional time for opening remarks, those approvals will be honored. Please wait for me to recognize you before speaking to ensure that all comments and questions are heard for accurate recording. Once all questions are addressed to satisfaction of council, we'll move to closing remarks. Five minutes have been allocated for closing remarks for each side. Following closing remarks, the hearing will conclude.

Does anyone have any questions at this point? Seeing none, let's get this going.

HEARING ON 22-8-5-P

MR. GOLINVEAUX: This hearing is
related to an agenda item number 22-8-5-P, as in Paul, in regards to NFPA-70, Section 215.18(E) and 215.18, and CAM 70-89 and CAM 70-109. So those who are going to be speaking can work their way to the table. And are there any council members recusing from this agenda item?

MR. REISWIG: Thank you, Mr. Chair. Rodger Reiswig, member of council. For the record, I am recusing myself on this agenda item, and I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair. John Kovacik, member of council. For the record, I am recusing myself on this agenda item, and I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. GOLINVEAUX: Thank you, gentlemen. So begin with introductions. James, I believe.

MR. WINGATE: Chris.

MR. GOLINVEAUX: Chris. Okay.

MR. WINGATE: Chris Wingate, Maxivolt.
MR. MOELLMANN: James Moellmann, Maxivolt.

MR. GOLINVEAUX: You are James. Okay. All right. I don't see anyone representing the opposition. So at this point, James, are you going to be speaking, or Chris are you going to be speaking on the --

MR. MOELLMANN: We both intend on speaking.

MR. GOLINVEAUX: Okay. I will recognize you. And please begin by introducing yourself and proceed with your opening statement in support of your appeal.

MR. WINGATE: My name is Chris Wingate with Maxivolt. I appreciate the council granting us this hearing. I have six key points I want to make, explaining why I believe it's impractical and if it's upheld, it will have negative consequences. The first point is this puts NFPA on an island. IEEE SPDC wrote a letter opposing this revision of the code saying that CMP 10's use of IEEE 52 as the only substantiation for this revision is a misuse of the document. NEMA filed a NITMAM opposing
this requirement. And this requirement
contradicts the UL standard for 249. It also
contradicts the IBC standard, 61643. And,
additionally, it contradicts another part of
the NEC Article 242, which permits devices with
3k nominal discharge currents to be installed
in the locations in question. So The Engineer
Society, The Manufacturers' Association, and
both of the worldwide standard go against
what's being proposed. And my second point is
corns concerns about the code of conduct. In reading
the technical meeting transcript, the chairman
of CMP 10 stated IEEE standard 652.41.12
characterizes the service entrance as being
typically exposed, surges break up the 10KA.
So in the CCC 2 where the 10k nominal discharge
current tests waves and the values are
mentioned, it is for this scenario. It's
for -- it's called scenario one. The event of
a lightning flash not directly involving a
structure in high lightning exposure areas,
generally considered to be Florida, the
southeast coastline.

I wouldn't characterize those
scenarios as being typical to service entrance panel. A typical service panel is not in a high light exposed area and it's not subjected to nearby lightning strikes typically. Further, the test that determines what this rating is actually introduces this level impulse to the device 15 times. So that may be even more atypical to think that a service entrance can be subjected to 15 nearby lightning strikes in this high-density area.

My third point is related to the law of diminishing returns. Proponents of this code change contended that it is needed to increase the durability or currently allowed circuit breakers devices, yet no evidence was submitted that the devices currently allowed over the last several decades and installed safely have had any excessive failure rates or durable concerns. They're literally hundreds of thousands, if not millions of devices with nominal discharge current ratings of 3k or less that have been installed in field for decades safely and effectively performing. So why -- why is it there was no data brought to say we
have a durability issue with surge protector devices? The probable answer is that there is no data to support that stance. An analogy citing safety concerns, city ordinances typically require fencing of four foot or higher to be installed around swimming pools. This is reasonable safeguarding, as the NFPA states in its mission, of the public for risk of drowning. This proposed revision is akin to city ordinances requiring 16-foot fencing to be installed around a swimming pool. It's well beyond reasonable safeguarding.

My fourth point, unintended consequences if this is passed through is essentially the NFPA will be deeming safe, functionally and highly durable devices as being insufficient code violations. It will cost consumers millions of dollars to comply with this unreasonable requirement. It will put hundreds of thousands of non-environmentally friendly components and devices in landfills. It will waste unknown amounts of energy to manufacture, distribute, market, sell, and install replacement products
for the products that are already perfectly safe, effective, durable, and functionally built. It will create an opportunity for dangerous defective devices to replace safe functional devices, citing a recent recall of 47,020KA SPVs due to fire hazards.

My fifth point. New information that came in process begs this matter to be reconsidered. For the majority of the code cycle, the document of the mission before IEEE C62 was used as a the primary justification. Just prior to the technical meeting, it was discovered that the document was being used out of line according to IEEE SPC. They wrote this letter that I mentioned before.

So in light of this new information, NEMA, who supported the change throughout the rev one and rev two processes, rescinded their support and actually filed NITMAMs opposed to this change. So, to me, it's obvious that all facts were not on the table throughout the entire process and, at bare minimum, it needs to be reconsidered by the code-making panel.

One last point, SPVs began being
mandated in the NEC protect life-saving equipment. So if one of these rare 10KA events occurs in this location that we're discussing today, what happens to that life-saving equipment? The fact of the matter is is that in all likelihood that life-saving equipment will fail regardless of the 10KA device being in place. So the whole point of getting this into the code to begin with was we're not able to protect it at those levels anyway. So we would have life-saving live equipment that's failed, but an SPV that has not failed essentially. So I believe it's missing the original intention. That's all I got, James.

MR. MOELLMANN: James Moellmann, Maxivolt. So just to clarify a couple of things Chris brought to the table. From the beginning of this process, we have asked for the data, we have asked for information, we have asked for substantiation about why the existing products in the field are not suitable. We are still getting no information back. And that's the process we're struggling with. There's no information being presented
to demonstrate why this change from what's an acceptable level of 3,000 amps to 10,000 amps is being required.

Looking through all the research that we have and all, you know, some of the main resources, IEEE, UL, CSA, NEMA, NIST, EPRI, there's no information to support this proposal. They're not bringing up a safety concern saying that, you know, the current devices aren't safe so we see no reason for the safety behind this proposal. And so from that standpoint, we're struggling to understand why NFPA is not following the process. In the regulations in Section 3.3.6 it basically states the following guidelines are going to be used, and it specifically mentions research data and engineering fundamentals. There's been no research done or presented where engineering fundamentals demonstrate the need for this change. To that point, you have hundreds of thousands of these devices installed today that are being used. Why is the change necessary? You know, what is making it? And there's no data to support this
change. So we're struggling to understand what the justification is and why NFPA as a safety organization is promoting a change that has no basis.

The second point is to help reiterate and to illustrate, if I can, very quickly here the principles behind what we're talking about. And I'm not going to make this technical. So I'm going to try to do this simply. You guys are familiar with water. I have a water tank. It's a 10,000-gallon water tank so there are 10,000 amps of current. You have to discharge or empty a water tank of 10,000 amperes in less than one millionth of a second. You got to make 10,000 gallons go from the water tank into a specific location. How are you going to do that? Are you going to put a three-inch valve on a water tank and expect 10,000 gallons to go through the water tank in less than a second? You can't do it. What could you do? You could open the bottom of the tank and to try to flush the water out and hope to get it out instantly. But you still can't move 10,000 gallons in less than a second. It takes too long.
So from this standpoint, and in particular this appeal is dealing with Articles 215.18 for a feeder circuit. A feeder circuit is the main location, not the service entrance. It's a connection from the service entrance to another location in the system. So now we're having the 10,000 gallons go to the service entrance, but I also have to get it to go through the feeder circuit in less than a second. It's just a physical impossibility.

The physics are what we're struggling with here with the proposal. And, you know, we appreciate what code panel 10 is doing. We agree wholeheartedly that you don't want to install a device that's beyond it's capability or beyond it's abilities. That's not what this is about. We have hundreds of thousands of these devices installed. They're performing well and there's nothing that's been brought to the code panel to say they're inappropriate or they're not acceptable. And so this is kind of where we're coming from. We don't see the justification. We don't understand the change. From our standpoint, there's no reason for the
change. There's no rational explanation from research being presented. There's no engineering or fundamental principles here that apply. As a matter of fact, the fundamental principles go against what's being asked. So we simply ask the panel to remove this requirement. Thank you.

MR. GOLINVEAUX: Okay. Thank you. And not having anyone opposing this appeal, I'll open it up for questions from council. Jeff.

MR. FOISEL: Jeff Foisel, member of council, you said that this contradicts UL standards and other entity standards. Is that a contradict, or is that an exchange to the requirements? Like, there's no way you can comply to both, or is it that the one is simply more strict?

MR. WINGATE: Chris Wingate, Maxivolt. So in the UL standard for the location that's being discussed here for an SPV to be installed, it calls for a type one or type two device. A type two device can have nominal discharge current rating of 3KA. So according
to the standard UL 1449, you can install a 3KA nominal discharge current in the locations that we're discussing.

MR. GOLINVEAUX: Good. Okay.

MR. WINGATE: Did you want to speak on that, James?

MR. MOELLMANN: Yeah. If I can.

MR. GOLINVEAUX: You may.

MR. MOELLMANN: James Moellmann, Maxivolt. So to Chris's point, not only in UL, UL allows the current listed devices that are at a much lower level. IEEE standards, which is one of the things that we've been contesting with from the beginning, state specifically do not use this standard as the mandatory requirements. One of the reasons for that is simply because the IEEE standards, the basic standards for voltage protection, have about 320 pages to it. And they specifically state don't apply to mandatory ratings because there's a lot of factors that need to be taken into account. And from that standpoint, the current guidelines in Section 242 have worked well. There's lots of these devices installed
in multiple locations around the country. And Article 242 works. Its list allows these other devices.


MR. QUITER: Jim Quiter, member of council. As I understand it -- well, first of all, one of the things we generally look at is process and whether the process worked. And I understand it your two processes issues are, one, sort of the mischaracterization of what is typical, and the other would be no technical substantiation for the changes. Am I missing something, or are those the two issues?

MR. WINGATE: Chris Wingate, Maxivolt. I believe those are the primary issues. Unless the panel sees something else that we mentioned that could justify the process.

MR. GOLINVEAUX: James Golinveaux, member of council. As a follow-up to that question on the code of conduct claim on the chair of CMP 10, is it your understanding it wasn't a thorough answer or it was incorrect completely?

MR. WINGATE: I believe, you know,
it's not a black-and-white statement. What's typical for you might not be typical to me or someone else. So typical is vague language. I think that in that room when people hear, in general, when people hear "typically exposed," I'm going to think that's every day, perhaps every week. You know, something on a regular basis. Where, in this case, the test wave that the ratings that are being referenced and using that standard is justification for, they're talking about very atypical scenarios. So I'll leave this up for translation.

MR. MOELLMANN: Let me just add to that.

MR. GOLINVEAUX: Just introduce yourself again, please.

MR. MOELLMANN: James Moellmann, Maxivolt. So one of the things that becomes critical here is when you mention the word "typical," it also denotes an expected level of event. If this is expected, if this is normal, if this is taking place currently, where are all the failures for these devices that don't meet that rating. There's been no evidence, no
data that's presented to demonstrate this issue
that the device is not performed adequately.
So we're struggling with the word "typical"
here because it doesn't make sense. It
doesn't -- there's no data to back it up.
Thank you.

MR. GOLINVEAUX: Suzanne.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff. One of the points that you make is
that this is inconsistent with a requirement
put forth by IEEE. But on panel 10 there is a
member of IEEE who voted to support the change.
Do you have a sense of the inconsistency
between the position that you've brought forth
at the technical meeting on a letter versus the
position that the IEEE representative who I
believe participates pursuant to a directed
vote. Thank you.

MR. MOELLMANN: Thank you. James
Moellmann, Maxivolt. Yes. And, specifically,
I appreciate the question because it is very
good in understanding this process. The IEEE
organization has 428,000 members. The IEEE
member on code panel 10 has a directed vote
from a specific narrow piece of that organization.

One of the challenges we face is that our products, these devices, multi protection surge protection is not represented by that IEEE group. There's an IEEE group specifically called SPDC, surge protective devices committee, that represents these topics. There's no voice from our chair or from this group in other IEEE group. So his directive vote was by another community that doesn't know anything about these products.

And so from that standpoint, I've talked to the member. We tried to help make our point known and we were unsuccessful in giving him any data. Because the challenge we faced here was this proposal went forward and has been accepted with no rationale. So we produce rationale to show something that doesn't exist. And that's kind of the trap we ran into. Thank you.

MR. GOLINVEAUX: Okay. Are there any further questions from council?

MS. BELLIS: Dawn Michele Bellis, NFPA
staff. Just to go back and clarify something that you said in your opening statement regarding IEEE as well. You said that this letter came to light. I'm not sure of the timing. Did the letter come to light from IEEE after second draft was completed or prior to the second draft?

MR. WINGATE: Chris Wingate, Maxivolt. This actually was brought -- we received this letter from chairman of IEEE a number of days before the technical meeting. I don't know exactly. But it was not brought to -- it was not introduced in the process until the technical meeting.

MR. MOELLMANN: James Moellmann, Maxivolt. Just let me clarify that a little bit. To the point of when we went to code panel 10 in the beginning of the PIs and substantiation process and asked for justification, they came back with a statement of IEEE C62 supports this. As we tried to show that IEEE doesn't support this, it was not accepted. We went to IEEE SPDC to get confirmation of their position and that's where
the letter came from. So it came out after this process started. Thank you.

MR. GOLINVEAUX: Are there any further questions? Seeing none, you have five minutes to summarize your remarks in support of your appeal.

MR. MOELLMANN: James Moellmann, Maxivolt. Again, we appreciate the panel's time here, the council's time, and we appreciate the work that NFPA is doing. We appreciate the work that Code-Making Panel 10 is doing. We see them doing lots of good things. But when it comes to having the ability to understand a very technical and very complicated issue, they need to do more research. They need to be able to understand and justify this position.

In particular, what we're struggling with is there are hundreds of thousands of devices installed today that don't meet this requirement. And there's nothing going forward, there's nothing in this proposal to require a change to what's existing. So if it's good enough now and it's going to be good
enough for 20 or 30 years, where is the justification? Where is the rationale that says it must be changed? If there's nothing wrong, if they're not causing fires, why does this need to be changed? And that's the process violation we're struggling with. We don't see the process being upheld to show the rationale, to show any data, to show any engineering fundamentals that support this position. Thank you.

MR. GOLINVEAUX: Thank you. As we conclude the hearing, let me inform you as to what happens next. The council will deliberate and reach its decision in executive session. Once the is decision made, that decision including the background and any other information council believes relevant will be prepared by NFPA staff and published by the secretary of the Standards Council on the Standards Council web page, www.NFPA.org/SC2022, and in accordance with the regulations governing the development of NFPA standards.

Additionally, the decision will be
sent to appellant and the chair of the responsible committees directly. The official opinion and decision of the council is that as published by the secretary and no other communication shall be considered the council's decision or position. Any questions regarding the decision should be addressed with the secretary.

On behalf the NFPA Standards Council, I'd like thank all of those who participated in today's appeal hearing. Your involvement, as well as the stakeholders', is important to the NFPA standards development process. This hearing is now ended. Thank you, gentlemen.

MR. MOELLMANN: You're welcome.

HEARING ON 22-8-5-0

MR. GOLINVEAUX: Okay. I'm going to move on to the next related agenda item number 22-8-5-0 and related to NFPA 70, Section 225.42(E) and CAM 70-88. Okay. As speakers are making their way to the microphone, I'm looking for any council members that need to recuse.

MR. REISWIG: Thank you, Mr. Chair.
My name is Rodger Reiswig, member of council. For the record, I am recusing myself of this agenda item, and I will not participate as a member of the Standards Council in the hearing, deliberation, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair. John Kovacik, member of council. For the record, I am recusing myself on this agenda item. And I will not participate as member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. GOLINVEAUX: Thank you, gentlemen. And if you'd introduced yourself before, I'd like you to reintroduce yourself for the record on this motion if you'll be speaking in favor of the appeal.

MR. MOELLMANN: James Moellmann, Maxivolt.

MR. WINGATE: Chris Wingate, Maxivolt.

MR. GOLINVEAUX: All right. And not seeing anyone opposing the appeal, you have ten minutes to support your case. You can divide up the time as you see fit.

MR. WINGATE: Chris Wingate, Maxivolt.
This is the exact same stipulation just in a
different part of the code. It's just related
outside branch circuits as opposed to the
feeders. Honestly, I'll just read the same
thing again. Do I need to do that? I'm sorry
to ask this type of a question, but --

MR. GOLINVEAUX: If you want to state
on the record that your previous testimony is
the same and applicable to this, I would be
more than willing to accept it.

MR. WINGATE: Yes, sir. My previous
testimony is applicable to this appeal as well.

MR. GOLINVEAUX: Okay. And we will
transpose that into this. And were there any
questions by council that may differ to this
appeal that you would be aware of?

MR. WINGATE: I'm not aware of any.

MR. GOLINVEAUX: Okay. James.

MR. MOELLMANN: I do have a couple
points I'd like to bring up for this issue. As
this is an --

MR. GOLINVEAUX: Could you introduce
yourself again.

MR. MOELLMANN: James Moellmann,
Maxivolt. Thank you. Again, to this issue, when we talk about different areas of electrical protection, there are three parts that we're addressing here where this code has been proposed to be modified. One is at the service entrance, one is at the feeder circuits, and the third is outside branch locations or branch feeder circuits.

So from that standpoint, again, I want to help reiterate why we see the physics and the irrational justification for this proposal. Again, I'll go back to the water tank. I have 10,000 gallons of water. I am trying to discharge and move, which is similar to a surge event. I've got to make sure that this event gets stopped and doesn't go and damage electrical equipment.

So if I'm at the service entrance, it's got direct exposure. And the feeder circuit, I have to go through the first 10,000 gallons to get to the feeder circuit, now I have to go to the next area and get the 10,000 gallons to go into the outside branch circuits.

So by physics it's a pretty difficult
assumption to think you're going to move all
that current, that voltage, through the system
in millionths of a second. Because if these
devices don't respond in millionths of a
second, the damage is done. They're
ineffective and they don't work. And so that's
kind of the point with what we're driving all
this home to, and what we're trying to help
illustrate is that effective use of these
devices depends on how they're installed, where
they're installed, and the rating of the
device.

The devices currently installed are
sufficient. They're in all these locations
today. They're at service entrances. They're
at branch circuits. They're at feeder
circuits. And they're rated at 3,000 amps.
Nobody's made any data; nobody's made any
rationale. There's no engineering science
behind the justification for this change.

So our point is simply this: Why is
the code being changed? Where's the
justification? Where's the rationale? Where's
the engineering science? Where's the data that
drives this point? We've seen all the -- we've asked for data. We know the standards. We're involved with all standards organizations, IEEE, CSA, UL, NEMA, NIST, EPRI. Again, all these organizations representing no data, no information that justifies this change.

So we simply ask the council members to withdraw this proposal as it does not follow the NFPA guidelines and NFPA process. If there's no rationale, if there's no engineering science behind it, if there's nothing wrong with the existing products in the field, why is the change made? Thank you.

MR. GOLINVEAUX: Okay. With that, I think we opened up the session to new questions that may be appropriate for council. Is there any questions from council? Seeing none, do you have a summary? I'm trying to go through the process here.

MR. WINGATE: Yeah. Just to amuse everyone, I believe it's impractical. It has negative consequences that goes well beyond the point of diminishing returns and the stated intent of the National Electrical Code, which
is practical safeguarding.

MR. GOLINVEAUX: Thank you. As we conclude the hearing, let me inform you as to what happens next. The council will deliberate and reach its decision in executive session. Once the decision is made, the decision, including the background or any other information that council deems relevant, will be prepared by NFPA staff and published by the secretary of the Standards Council on the Standards Council web page, wwp.NFPA.org/SC2022, and in accordance with the regulations governing the development of NFPA standards.

Additionally, the decision will be sent to the appellants and the chair of the responsible committees directly. The official opinion of the decision of council is that published by the secretary and no other communications shall be considered the council's decision or position. Any questions regarding the decision should be addressed with the secretary.

On behalf of the NFPA Standards
Council, I want to thank all of those who participated in today's appeal hearing. Your involvement, as well as all the stakeholders', is important to the process of NFPA standards and development process. This hearing is now ended. Thank you.

HEARING ON 22-8-5-Q

MR. GOLINVEAUX: Moving on to the next agenda item 22-8-5-Q. This is in regards to NFPA 70, Section 230.67E, CAM 70-90. And I am going to ask for recusal statements of council.

MR. REISWIG: Thank you, Mr. Chair. My name is Rodger Reiswig, member of council. For the record, I am recusing myself on this agenda item, and I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair. John Kovacik, member of council. For the record, I am recusing myself on this agenda item. And I will not participate as a member of the Standards Council in hearing, deliberations, or voting on this matter.

MR. GOLINVEAUX: Thank you, gentlemen.
So, to begin, I'm looking where the microphone is pointed, I'm going to assume Chris. Chris, if you could please begin by introducing yourself and proceed with your opening statement in support of your appeal.

MR. WINGATE: Chris Wingate, Maxivolt. And, again, I'm going to exercise the option that you gave me to let my testimony from the first appeal stand for this one as well.

MR. GOLINVEAUX: And it shall be transferred over to this record. So thank you.

MR. MOELLMANN: James Moellmann, Maxivolt. I do have a couple of other points to help understand the position of this proposal. So this proposal deals with Article 230.67, item E. Again, it's manning the minimum 10 amp level of voltage and surge protection at the service entrance point. We support the panel, code panel 10, and their efforts to promote and to increase the safety. However, for this item, we fail to see the justification and the rationale to support this change to the NEC.

From that standpoint, let's go back to
our example again. I have a service entrance that's exposed. What's its biggest exposure? It's connected to the electrical system and it's exposed to lightning. So from a service entrance perspective, we understand that lightning can be a concern in some locations around the U.S. The challenge was putting this proposal in as this is a national mandate. You're now making it required for every single location in the U.S. to have a lightning protection requirement at a service entrance. Again, the same issue we've had all along still applies.

When you look through the standards, all the guidelines, all the engineering studies through IEEE, UL, all the different organizations that put together this information, the experts throughout the world, it's been mentioned by the panel that the justification for this was IEEE C62 41.2 the standard does do a good job of helping to classify, at least segregate and give appropriate installation guidelines.

What has been mentioned here before is
the rare opportunity for these events to take place doesn't happen very often. To the point of the same devices that we've been talking about are installed today. There's been no evidence, no data presented to the council that demonstrates the need for this change.

If this is about lightning, where is the need for lightning protection in the NEC? We agree that lightning is a concern. But lightning is handled in the NFPA standard NFPA 780. 780 is appropriate for those locations that have a lightning concern. It's not a global or a U.S.-wide concern for lightning across the U.S. But by mandating this proposal into the NEC, you're now making lightning protection a requirement for every single location from homes to apartments, anything that has a service entrance point.

So without data, without research, without, again, engineer fundamentals, why this change is needed we ask for and we sincerely ask that the council look into and understand that if the existing products work, where is the justification for the change. And if
there's no failures taking place, and there's no safety issues being presented, why should this proposal be adopted as a national requirement for every single location in the United States? And so from that standpoint, again, we ask that this item 230.67(E) be removed from the 2023 code. Thank you very much.

MR. GOLINVEAUX: Okay. Thank you. Any there questions from council? Go ahead.

MS. STASHAK: Cathy Stashak, member of council, was NFPA 780 brought into or asked about maybe a conflict between the two or no?

MR. MOELLMANN: James Moellmann, Maxivolt. Thank you. There have been discussions. And to code panel 10's diligence, they did have task force meetings to address this. There were several items brought to the attention of the code panel. NFPA 780 was brought up. And, again, it's not appropriate. Code panel 10 did not support the justification of NFPA 780 being used in this case as they did use that as part of their substantiation; they only used an obscure reference to IEEE 662.1.2.
So it was brought up. There have been lots of discussions about lightning protection and lightning damage. And, again, it doesn't belong in NFPA 70. Lightning protection is part of 780. Thank you.

MR. GOLINVEAUX: Okay. Are there any further questions from council? Seeing none, you have five minutes for summarizing your support of your appeal.

MR. WINGATE: Chris Wingate, Maxivolt. Again, I'll just reiterate this is akin to requiring a 16-foot fence around an aboveground pool. It's well beyond the idea of practical safeguarding. What's next? In the next code cycle, are we going to say we need 20KA, because, after all, that's a little bit better than 10. So it's like where does it end? And it's not practical to bring it up to that level, that test literally saying the service entrance is going to be subjected to 15 nearby lightning impulses. That is above practical safeguarding.

MR. GOLINVEAUX: Okay. Are we concluded? Thank you. As we conclude the
hearing, let me inform you as to what happens
next. We've heard this before. The council
will deliberate and reach its decision in
executive session. Once the decision is made,
that decision, including the background of any
other information council believes relevant
will be prepared by NFPA staff and published by
the secretary of the Standards Council on the
Standards Council website www.NFPA.org/SC2022,
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governing the development of NFPA standards.

Additionally, the decision will be
sent to the appellants and the chair of the
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opinion and decision of council is that as
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decision or position. Any questions regarding
the decision should be addressed with the
secretary.

On behalf of the NFPA Standards
Council, I'd like to thank all of those who
participated in today's appeal hearing. You're
involvement, as well as all the stakeholders',

is important to the NFPA standards development process. This hearing is now ended. Thank you, gentlemen.

MR. MOELLMANN: You're welcome.

MR. WINGATE: You're welcome.

HEARING ON 22-8-5-R

MR. GOLINVEAUX: Moving on to the next hearing. If the appellants want to report their way to the table. And anyone speaking against the appeal move to the table for me.

This hearing is related to agenda item number 22-8-5-R in regards to NFPA 79, Section 210.8(A) and CAM 70-94. Are there any members of council that need to recuse themselves?

MR. REISWIG: Thank you, Mr. Chair.

Rodger Reiswig, member of council. For the record, I am recusing myself of this agenda item. And I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair.

John Kovacik, member of council. For the record, I am recusing myself on this agenda item. And I will not participate as a member
Standards Council in the hearing, deliberations, or voting on this matter.

MR. GOLINVEAUX: Thank you, gentlemen.

Greg?

MR. WOYCZYNSKI: Yes.

MR. GOLINVEAUX: Okay. So let's start with self-introductions, Greg. And then we'll work our way to here.

MR. WOYCZYNSKI: Sure. Greg Woyczynski from AHAM, the Association of Home Appliance Manufacturers.

MR. DOLLAR: Randy Dollar, Siemens.

MR. MANCHE: Alan Manche, Schneider Electric.

MR. GOLINVEAUX: Okay. Thank you. So, Greg, please begin by introducing yourself and proceed with your opening statement in support of your appeal.

MR. WOYCZYNSKI: Greg Woyczynski, from AHAM, the Association of Home Appliance Manufacturers. Thank you to the Standards Council for hearing this appeal. You all have a tall task over the next few days and it may be tempting to go through a checklist placing
certain appeals in one bin or another based on the NFPA regulations. For AHAM's appeal, we urge you to think longer term and question the roots of those regulations, to whom are existing the procedures beneficial, who is effectively excluded, and most importantly, should existing procedures remain in place.

AHAM's appeal points out where the existing regulations were not followed and where the existing regulations and procedures need to be changed. According to clause 112.1 of the regulations governing the development of NFPA standards, the Standards Council, you all, may adopt new regulations supplemental to those already in place. We'll get into the specifics on the appeal. But, again, Home Appliance Manufacturers believe a fundamental change is needed in the NFPA standards process. And the rules make clear that you, the Standards Council, have the ability to make that change.

The process leading to CAM 70-94 started with the second revision public comment submitted by AHAM on August 19, 2021, these comments are informative only suggesting that
Code-Making Panel 2 reject other comments seeking to expand to GFCI. The basis for AHAM's comment because of nuisance tripping GFCIs are due for a much needed modernization. And until these devices are modernized, GFCI expansion should be paused. These comments were disregarded during Code-Making Panel 2 meetings. One year later, we now have a total of 23 states that have modified their state electrical codes creating exception to the GFCI requirements in the NEC recognizing the importance of GFCI upgrades before further GFCI expansion.

Despite objections from Home Appliance Manufacturers and multiple other stakeholders, Code-Making Panel 2 moved forward with expansion or this expanding of locations in which a GFCI must be installed. At the time of the code-making panel's decision, there was no official representation from end product manufacturers while there was significant representation by GFCI manufacturers and parties which they may have significant influence over. At the time of second revision
ballots, three GFCI manufacturers sat as 
principals on CMP 2 with official 
representation from end product manufacturers 
who, without a doubt, are materially affected 
parties.

The process continued with AHAM 
submitting a CAM seeking to reject second 
revision 7956. The CAM noted a desperate need 
for GFCI modernization before further expansion 
for the sake of consumer safety. Today the 
standard governing GFCI tripping is outdated 
with language mandating trip and no trip 
thresholds based only on 60 hertz. The world 
has moved on from single frequency operation 
with virtually every modern consumer electrical 
product having components that operate at a 
frequency other than 60 hertz.

The CAM made a point that GFCI 
manufacturers are unlikely to modernize the 
products until given an incentive to do so 
within the NEC. Halting GFCI expansion within 
the NEC is that incentive. Despite against 
comments and support from other industries, the 
technical meeting vote failed. Although there
was a record of those for and against, there was not a record of who was voting.

So what is AHAM asking from the Standards Council in this appeal? The first thing AHAM is requesting is to overturn the technical meeting ballot which would be the CAM 70-94. There are two ways that second revision 7956 violated the NFPA process. When CMP 2 was voting on second revisions, the code-making panel was not truly in balance. There was no representation from end product manufacturers or installers. There was, however, significant representation from GFCI manufacturers.

Another way the second revision 7956 violated the NFPA process is by lack of attempts towards resolution. The National Electrical Code is the American national standard and therefore is subject to ANSI's essential requirements which are referenced throughout NFPA's regulations. These essential requirements dictate attempts toward resolution.

Code-Making Panel 2 did not make attempts towards resolution. Every person who
voted for second revision 7956 heard objections
from Home Appliance Manufacturers concerned
with safety of critical appliances being
subject to nuisance tripping. Each one of
those panelists proceed to vote SR7596 without
comments, making no attempts towards resolution
of the safety risk. The Standards Council can
resolve these concerns by reversing the
technical meeting vote and accepting CAM 70–94.

The second thing AHAM is asking of
Standards Council is a revisitation and update
of procedures governing the NFPA technical
meeting. The process of registration and
tallying votes at the technical meeting is
standards process decision. There are several
ANSI essential requirements that are not
properly considered at the technical meeting.
Among them are openness and lack of dominance.
Openness requires there be no undue financial
barriers.

Only NFPA members who attend the
meeting in person can vote on CAMs. There's a
travel cost to attend a technical meeting
person and there is a cost for NFPA membership.
If some companies can afford 20, 30 votes or more at the technical meeting and other companies can afford one or two, then openness has not been achieved.

Lack of dominance requires no dominance by any single interest category individual or organization. At this time, dominance at the technical meeting cannot be proven or disproven since no records of the technical meeting voters are kept and made public. We only have hearsay and anecdotal evidence of dominance. For example, AHAM has heard that some companies are participating in bulk registration for the technical meeting. These companies are bringing so many people that certain stakeholders are submitting entire spreadsheets for registration at the technical meeting.

AHAM would like to suggest a couple solutions for this issue. These are not mutually exclusive. The first suggested solution, make public who is voting at the technical meeting. When walking into the technical meeting, attendees have to show a
badge or register at tables just outside the meeting. All this solution would require is keeping a list and posting that list online with names and the associated organizations.

As with any step in the safety standards development process, whether it be a consensus body or a membership body, transparency is critical. By not keeping track of and releasing attendee information, NFPA is improperly prioritizing privacy over transparency.

Although, this does not solve AHAM's immediate issue of passing CAM 70-94, this information is invaluable to the Standards Council in making sure that the technical meeting meets openness requirements and lacks dominance from any one interest. The second suggested solution, keep the technical meeting vote to one vote per organization represented. The same requirement is used in the code-making panel process today.

It is AHAM's understanding that imbalance of a technical meeting is not a new issue. In response to previous concerns, NFPA
instituted a six-month rule. Only people who have been NFPA members for six months or more are allowed to vote at the technical meeting. This does nothing to prevent buzzing in by any stakeholder who wishes to do so. Many of the issues discussed at the technical meeting are perennial. GFCIs have been a highly debated issue for many code-making cycles and will be an issue for years to come. Knowing this, some stakeholders can plan ahead to dominate the meeting. I'll close my opening comments there.

MR. GOLINVEAUX: Thank you. And who's -- are you going to split the time or -- Randy, you have ten minutes to respond with your statement.

MR. DOLLAR: Randy Dollar, Siemens. Being one of the companies identified in the written appeal by name as buzzing people in, I really don't know where that comes from. But I just want to point out a few things is that Siemens goes through great lengths to ensure that all public inputs, public comments, NITMAMs, and any other proposal is very well vetted and well substantiated in addition to
being clear and concise. You know, we pride ourselves and put a lot of effort into that. We work with other members in the industry that represent other interest groups to get feedback on them so we can polish those inputs before we submit them.

I fully expect seeing this proposal to get a better success rate than a standard proposal because we do a tremendous amount of homework to try to make those proposals a much better quality than the standard proposal. We also take care when we're proposing or suggesting those proposals for industry associations. We were called out as having, I think, an 80 percent pass rate at the technical meeting, but Siemens actually didn't submit any CAMs. They were submitted by American Circuit Breaker Manufacturers Associations and I had to speak on behalf of that. But they weren't actually submitted by Siemens.

And I wanted to go through the points that they made specifically. They said that a typical NEC proposal had 168 votes for it. Proposals by Schneider or Siemens had 250
votes. That is an 82-vote difference. There were about 550 votes on each CAM. So that's about a 14.9 percent difference in the vote that could possibly be impacted. CAM 70-94, which is the one that's the topic of this appeal, was actually voted down 69 to 492. So it was a 423-vote difference.

And I appreciate it. That's all I got.

MR. MANCHE: Alan Manche with Schneider Electric. And I appreciate the opportunity to present here today. I'm going to read this so I get the references right. I'm here today representing Schneider Electric since we were named in the appeals 70-105 and 70-70. The appeal calls into question the dominance of circuit breaker manufacturers, okay, and that's really why I wanted to address the council today.

I'm here to assert that the circuit manufacturers were not a dominant factor. And, for the record, point the council to the voting record on 70-105 and 70-70 at the technical session. So I will repeat those. 70-105 and
70-70 at the technical session. In 105 there is a request to require AFCI protection for bathroom circuits with a delayed effective date, meaning, you know what, if the product is required, it would go in at a later date, right. That passed ballot by the NFPA technical session. A similar CAM, 70-70, which was requested by the American Circuit Breaker Association, the circuit breaker people, right, was a request to require the same requirement be passed without an effective date, meaning move it in -- make it effectively immediately the first day the code becomes effective. And guess what? That CAM failed. Okay. So if the Circuit Breaker Manufacturers Association and the circuit breaker manufacturers were lined up to support such an event from a dominance perspective, then why did the that one fail? All right.

So the assertion that the NFPA process does not meet ANSI essential requirements due to dominance is inaccurate and false. Thank you for your time and consideration for this comment. And, quite frankly, this will be, for
the record, for 22-8-5-R and 22-8-5-S. Thank you.

MR. GOLINVEAUX: Thank you. Are there any questions from council?

MS. STASHAK: Cathy Stashak, member of council. Greg, in your submittal, written submittal, you said that Code-Making Panel No. 2 is skewed. And can you just explain that further.

MR. WOYCZYNSKI: Sure. So at the time of second revision, zero representation from end product manufacturers, who are certainly materially affected parties by Code-Making Panel 2's decision, and no representation from end product installers. The same can't be said for GFCI manufacturers and GFCI installers.

MR. GOLINVEAUX: Ken.

MR. BUSH: Thank you, Mr. Chair. Ken Bush, member of council. Question for Mr. Woyczynski. You alluded in your testimony that AHAM participated in the process with the code-making panel. But could you let me know or tell me formally what was submitted by AHAM? Were they just comments? Were they public
inputs? Were they public comments? Was anything officially done? Or how was that participation made?

MR. WOYCZYNSKI: Yes. Thank you for your question. So AHAM submitted a second revision comment. It was informative only and advising the panel of home appliance manufacturers for certain other public comments or against certain other public comments. Within that informational comment that AHAM submitted, we also included a white paper showing that normal appliance operation can still cause a GFCI to trip.


MR. GALLAGHER: Rich Gallagher, member of council. I have a question for Mr. Woyczynski. You mentioned that, I guess, you were concerned about the current state of the GFCI products and the need for modernization. Do you have any sense of the time frame needed for modernization to occur? Is that something that is off in the distant future? Do you have a time frame for it?

MR. WOYCZYNSKI: It's not in the
distant future. It's needed now. And what I would point you to is the cumulative regulatory burden that appliance manufacturers are under. This is available for anybody to look up. You can go to regulations.gov and you can search for the acronym EPCA, E-P-C-A, Environmental Protection and Conservation Act. Home appliances are mandated to be more energy efficient, normally on a cycle of every seven years. So we have to incorporate new technology into our products to legally sell them without civil penalties. So amongst the things done to meet those new standards are incorporation of components which operate on frequencies other than 60 hertz. Not just variable speed drives, ECM motors, switch mode power supplies, LED drivers, all basic components of modern electrical -- not just appliances, but consumer electrical products in general.

And, specifically, I'll point you to the latest proposed rule for room air conditioners which the EOE proposed earlier this year. And they are setting levels of
required efficiency which virtually require implementation of a variable speed drive. So all room air conditioners likely will soon have to have a variable speed drive. Critical that those appliances are in use and can maintain operation, especially for the most common users of those appliances, typically underserved communities, folks with lower income. We need to make sure those folks are protected. And that's happening right now.

    MR. GOLINVEAUX: Follow-up?

    MR. GALLAGHER: And I guess what I'm most interested in is do you have any sense when the product, the GFCI product itself, would be available to be compatible with these new requirements for the equipment?

    MR. WOYCZYNSKI: I don't have a prediction on that.

    MR. GALLAGHER: Can I also ask, do you have any sense when GFCI would be more compatible with the home improvement?

    MR. DOLLAR: Randy Dollar speaking. Specifically speaking for Siemens appliances, we've not gotten one single reported nuisance
trip from a GFCI we've tested. Many of these devices we believe to very robust. But we believe it's --

MR. MANCHE: You know, we have a similar -- I guess I'll say we have a similar situation. And I guess what we're looking for is --

MR. GOLINVEAUX: You got to introduce yourself.

MR. MANCHE: Okay. Alan Manche, Schneider Electric. I think we've -- I feel like we were hit out of the blue here a little bit, right, with regard to the appliance side. And as we look forward, we need to understand what they believe -- where they're headed with the appliances, right, and where does it need to go. Because we're not seeing -- we're not getting those phone calls. We're not seeing that today. And I think it's the apprehension of where they're going tomorrow. And so that coordination needs to happen between AHAM and NEMA probably to understand what should we be looking for and for something that they're seeing that we need to address looking forward.
MR. GOLINVEAUX: Greg, I think you wanted to respond to that question. I'll let you go ahead.

MR. WOYCZYNSKI: Yeah. Thank you very much. Greg Woyczynski, AHAM. So one example we can take from this CAM is the addition of GFCI requirements everywhere in the kitchen. So this would now apply to the refrigerator. What is a refrigerator? A refrigerator is a compressor, an expansion valve, a condenser, and a evaporator. The same basic components that we see in an air-conditioning system. The same energy efficiency savings technology is used in an refrigerator as in an air conditioner. So I think the instances of problems with air conditioners have been well established. We're going to see those things exist in home air conditioners and household refrigerators.


MR. QUITER: Jim Quiter, member of council. There with a couple things that you asked for overturning the action on the floor, and I wanted to ask a question about each of
them. You talked about not true balance and the fact that there's three manufacturers of GFCI and none of appliances. And you mentioned that somebody has now applied. But have people applied before and been turned down, or is this the first time that appliance manufacturers have applied?

MR. WOYCZYNSKI: No. So -- and this relates a little bit to the next CAM. Greg Woyczynski at AHAM. The GFCI requirements for specific appliances have always been in chapter 4. So we have appliance representation on CMP 17 which covers chapter 4. The need for appliance representation on CMP 2 is a new thing.

MR. QUITER: Okay. A follow-up?

MR. GOLINVEAUX: Please.

MR. QUITER: So the second thing you talked about is no attempt to resolve. I think -- I think I'd like a little more fact on that. You mentioned nobody changed their comment, but that doesn't mean nobody thought about it. So is there more that you can give us in the no attempt to resolve part of your
request?

MR. WOYCZYNSKI: Yeah. Thank you for that question. So AHAM submitted a TIA almost two years ago. And some of the comments back were that it lacks technical substantiation. We've now done that work. Updated the UL 858 as an example. Provided technical substantiation on a white paper. And now submitted this references to CMP 2. There were no comments from those who voted to accept. So we met the criteria from the negative comments on the TIA. There's no path forward. No attempt towards a resolution on this latest ballot.

MR. GOLINVEAUX: Okay. Jeff.

MR. FOISEL: Jeff Foisel, member of council. You mentioned about the financial hurdles involved. Can you take me through the steps of the process and where specifically there would've been financial hurdles, like all the way back to the initial public comment.

MR. WOYCZYNSKI: Sure. So the financial hurdles are with the technical meeting. So the purchase of travel to Boston.
Purchase of NFPA membership.

MR. GOLINVEAUX: Okay. James Golinveaux, member of council. In your testimony, the dominance claim that you referred to was on the floor and it was a question of whether there was dominance and not necessarily a statement of there was dominance. Am I correct in that statement or your summary of what you said?

MR. WOYCZYNSKI: That's right. Greg Woyczynski, AHAM. And the point that we make in this appeal is why keep guessing? Why keep guessing is there dominance, is there not dominance? Let's collect the numbers. Let's make them public so we can make improvements to the procedure.

MR. GOLINVEAUX: Okay. Thank you. I just want to clarify that.

Does anyone else have a question?

Jeff.

MR. FOISEL: Just this one follow-up. For the technical meeting, was the online system -- I'm sorry. Jeff Foisel, member of council. For the technical meeting, was the
online tools, online being able to submit
comments done by anyone?

MR. WOYCZYNSKI: Could you clarify?

MR. FOISEL: The feature available
from the NFPA site for the technical meetings
included online capabilities to be able to be
part of the dialogue, part of the discussion
about attending. Was that done as part of the
submission?

MR. WOYCZYNSKI: We had no trouble
filing the CAM electronically. But the burden
here is not with filing written comments, it's
with placing the vote at the technical meeting.

MR. GOLINVEAUX: Okay. Are there any
further questions from council? Seeing none,
Greg, I give you five minutes for summarizing
your support of the appeal.

MR. WOYCZYNSKI: Greg Woyczynski,
Association of Home Appliance Manufacturers.
In closing, I would highlight that just because
GFCI expansion has helped to protect people in
the past, does not mean GFCIs can adequately
protect people now. Just because the procedure
of the NFPA technical meeting has been deemed
fair in the past, does not mean that technical

meeting procedures do not require maintenance.

Thank you.

MR. GOLINVEAUX: Thank you.

Randy, are you going to start this off

for five minutes?

MR. DOLLAR: I have no comments.

MR. GOLINVEAUX: No comments. Okay.

Thank you. As we conclude the hearing, let me
inform you as to what happens next. The
council will deliberate and reach its decision
in executive session. Once it's made, that
decision, including background or any other
information council believes relevant, will be
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opinion of the decision council is that as
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the decision should be addressed with the
secretary.

On behalf of the NFPA Standards
Council, I'd like to thank all of those who
participated in today's appeal hearing. Your
involvement, as well as the stakeholders', is
important to the NFPA standards development
process. This hearing is now ended. Thank
you, gentlemen.

HEARING ON 22-8-5-S

MR. GOLINVEAUX: The next agenda item
number 22-8-5-S, as in Sam, regarding the NFPA
70, Section 210.8(D) and CAM 70-95. Are there
any members of council that need to recuse?

MR. REISWIG: Thank you, Mr. Chair.
Rodger Reiswig, member of council. For the
record, I am recusing myself on this agenda
item, and I will not participate as a member of
the Standards Council in the hearing,
deliberations, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair.
John Kovacik, member of council. For the record, I am recusing myself on this agenda item, and I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. GOLINVEAUX: Thank you, gentlemen. So, Greg, please begin by introducing yourself and proceed with your opening statement in support of your appeal.

MR. WOYCZYNSKI: Greg Woyczynski with the Association of Home Appliance Manufacturers. I won't go through and repeat each of the points of the previous appeal, but please know that AHAM's written appeal contains a similar history to the previous CAM and the safety concerns are the same points about lack of proper balance on CMP 2 as well as the 2023 technical meeting. Please be sure to consider this in your deliberations.

This appeal relates to CAM 70-95, which failed the technical meeting ballot. AHAM is seeking to return 210.8(D) to text from the previous edition. There's one major difference between this appeal and the previous
This appeal seeks to address a decision by CMP 2 that is outside its mandated scope. According to the NFPA 70 committee scope and responsibility document, the responsibility of CMP 2 covers annex D, Article 210 and Article 220. And the second revisions specifically SR7966, CMP 2 copied text verbatim from chapter 4 and made changes they saw fit.

AHAM is not questioning the purview of the CMP 2 in regards to GFCI locations, such as rooms in a dwelling. Those requirements have always been in chapter 2. In fact, chapter 4 has a note that states for GFCI locations, see chapter 2. Similarly in the 2020 NEC chapter 2 contains text that states for GFCI protection on circuits containing specification appliances, see chapter 4.

GFCI protection on circuits containing specific appliances, including branch circuit protection, has always been in the purview of CMP 17. For CMP 2 to copy and paste the relevant section of chapter 4 into chapter 2 and now say it's CMP 2 scope is a clear violation of NFPA regulations. During the
second revision CMP 17 had end product manufacturer participation. To avoid this, CMP 2 moved the chapter 4 requirements and asked for a ballot on a panel which did not have any end product representation at the time. So in closing, I'll reiterate the request to return 210.8(D) to previous edition text. Thank you.

MR. GOLINVEAUX: Thank you. Greg, I assume you're going to start this off?

MR. DOLLAR: Randy.

MR. GOLINVEAUX: Randy. I'm sorry.

MR. DOLLAR: That's fine. Randy Dollar with Siemens. I would just ask that all of my comments that I've made for appeal 22-8-5-R be copied over and carried over. And I would just add one thing to that is to -- even though it was stated in the documents where they have identified 82 votes in the written appeal, CAM 70-95 was actually defeated by the vote of 134 to 424, which is a 290-vote difference. Thank you.

MR. GOLINVEAUX: Thank you. And, for the record, we will transfer over your original statement.
MR. MANCHE: Alan Manche, Schneider Electric. And I would ask the same thing, that may statement be transferred over from the previous comments. I will add one other thing is -- potentially Greg doesn't have this history -- is I've served as a member of code panel 2 for a number of cycles now. And one of the things that the panel has to make a decision on, whether it's in an appliance or whether it's in the branch circuit, is the electrocution hazard an appliance issue or is it a cord and plug connection potential issue with regard to the hazard. And so you end up with requirements. You end up with requirements in 210 and you end up with requirements back in 422.

And that's the reason that the debate unfolds between those two committees is because the hazard can resolve -- if I'm laying under the sink going to unplug the aerator or the garbage disposal and I'm laying in water, the discussion that then unfolds is, well, guess what, there's a shock hazard potentially with water there when you're doing that. So can you
put it in the appliance, or does it need to be in the branch circuit or in the receptacle requirement of 210?

So those are the kind of discussions that unfold in panel 2 so that you can understand that this isn't about pulling stuff out of panel 4. It used to always reside in panel 2 and then we added -- you know, we actually moved some of the appliance requirements to 4. And that discussion revolved around, back in panel 4, that came from vending machines. Because vending machines get rebuilt. And when vending machines get rebuilt, they put new cords on. The cords get beat up. They get moved around. You don't know if they're going to get plugged into a GFCI receptacle in the building. So they put them on the floor, but they put cord so that all of the vending machines that get transported all over the place and abused have GFCI protection.

So there are very distinct reasons for having the GFCI requirement at the appliance versus potentially at the receptacle in that
part of the code. So I just want to make sure that that was understood and there's a debate and a discussion that takes place with regard to that. Thank you.

MR. GOLINVEAUX: Okay. Thank you. I'm going to open it up for questions from council. Jeff.

MR. FOISEL: Jeff Foisel, member of council. Can you help me understand -- I think I'm hearing two different messages -- was it the text copied from 4 to 2, or was the text moved from 4 to 2?

MR. WOYCZYNSKI: The text was copied. Greg Woyczynski at AHAM. The text was copied. The original text in chapter 4 in the 2023 draft is still there.

MR. FOISEL: So this is more just an extract?

MR. WOYCZYNSKI: Copied and pasted. And then changed in Chapter 2.

MR. FOISEL: Okay. Thank you.


MR. QUITER: Jim Quiter, member of council. That last thing is what I was worried
about. Copied and pasted and then changed. So I think what we need to understand is what was the change? The change was to take it from applying to the building systems and applying it to appliances? Is that what the change was? Or what really was the change?

MR. WOYCZYNSKI: Good question. Greg Woyczynski at AHAM. So two big changes. One is the list of additional specific appliances clearly under the purview of CMP 17 specific appliances. The other is chapter 4 gives you options. You can have GFCI protection, and I'm looking at it right now, within the branch circuit of a current device, a device or outlet within the supply circuit, an integral part of the attachment plug within the supply cord factory installed within the appliance. The copy and paste to chapter 2 removed all of those options but one, only requiring a breaker.

MR. GOLINVEAUX: Okay. Any further questions from council? Yes. Suzanne.

MS. GALLAGHER: Suzanne Gallagher, NFPA staff. You mentioned just now,
Mr. Woyczynski, that -- you said something about there was a lack of proper balance on CMP 2. Is that -- is your assertion there the same as it was in your last appeal which was that there were not end product manufacturers represented on the panel.

MR. WOYCZYNSKI: Greg Woyczynski at AHAM. That's correct.

MS. GALLAGHER: Okay. Thank you.

MR. GOLINVEAUX: Any further questions from council? Seeing none, Greg, five minutes for your final support of the appeal.

MR. WOYCZYNSKI: Greg Woyczynski, Association of Home Appliance Manufacturers. If the Standards Council allow these 2023 changes, the council is condoning that any code-making panel can copy text from anywhere in the standard, place the text into an article within the panel's scope, and make changes. That should not be allowed. Thank you.

MR. GOLINVEAUX: Randy.

MR. DOLLAR: Nothing.

MR. MANCHE: Alan Manche, Schneider Electric. The only thing I would want to
correct is when Greg said when you move it into panel 2 it requires it to be a breaker. And that's not accurate. It could be a circuit breaker. It could be receptacle. It could be a lot of different embodiments that permits it to be there. So by moving it -- by having the option back in 422, what that ultimately does is say are we okay with the shock hazard where it plugs in and we can put it within one foot of cord, which means now we can apply it to the cord instead of having to go in the receptacle or the breaker in the infrastructure. So I just want to be clear since we've called out on the circuit breaker side that this is not a requirement for a circuit breaker. Thank you.

MR. GOLINVEAUX: Okay. Thank you. As we conclude the hearing, let me inform you as to what happens next. The council will deliberate and reach its decision in executive session. Once the decision is made, the decision, including background or any other information council believes relevant, will be prepared by NFPA staff and published by the secretary of the Standards Council on the
Standards Council web page, www.NFPA.org/SC2022, and in accordance with the regulations governing the development of NFPA standards.

Additionally, the decision will be sent to the appellants and the chair of the responsible committees directly. The official opinion and decision of council is that as published by the secretary and no other communication shall be considered the council's decision or position. Any questions regarding the decision should be addressed with the secretary.

On behalf of the NFPA Standards Council, I would like to thank all of you who participated in today's appeal hearing. Your involvement, as well as the stakeholders', is important to the NFPA standards development process. This hearing is now ended. Thank you, gentlemen.

All right. So if we can get the next people at the table.

MR. MANCHE: Mr. Chairman?

MR. GOLINVEAUX: Yes, sir.
MR. MANCHE: I would like to ask you a question. Right now I'm signed up to participate. After review of the record up until this point, I don't see a need for me to participate on the opposing side. Would it be possible if -- I looked at it and I sort of signed up realizing that the same comments I had supplemented on the topic. And I don't see a need to participate at this point so.

MR. GOLINVEAUX: It is your choice. Even though you're signed in, if you feel that you do not want to participate, that is your choice. So if you don't sit at the table, I won't call on you.

MR. MANCHE: Thank you.

MR. GOLINVEAUX: Thank you for clarifying.

HEARING ON 22-8-16-D

MR. GOLINVEAUX: All right. The next hearing is related to agenda item number 22-8-16-D, as in David, and in regards to NFPA 70, Section 210.8(F) and Exception No. 2 (new) and TIAs 1653, 1654, 1656, and 1657. Let's start with introductions. Oh, I will start
with recusals of council.

MR. REISWIG: Thank you, Mr. Chair.
Rodger Reiswig, member of council. For the record, I am recusing myself on this agenda item. And I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. KOVACIK: Thank you, Mr. Chair.
John Kovacik, member of council. For the record, I am recusing myself on this agenda item. And I will not participate as a member of the Standards Council in the hearing, deliberations, or voting on this matter.

MR. GOLINVEAUX: Thank you, gentlemen.

MS. STASHAK: Cathy Stashak, member of council. For the record, I am recusing myself on this agenda item. And I will not be participating as a member of the Standards Council in the hearing, deliberations or voting on this matter.

MR. GOLINVEAUX: Thank you, Cathy.

So we'll start off with introductions. Bill, could you please start with the introduction.
MR. KOFFEL: William Koffel, Koffel Associates. This afternoon I am representing Leading Builders of America. In the interest of full disclosure, I have also provided consulting services to AHRI on this issue.

MS. KOBAN: Mary Koban, representing AHRI.

MR. LEHR: Ed Lehr, representing ACCA. I'm a contractor, a electrical safety contractor and a member of ACCA.

MR. GOLINVEAUX: Okay. And prior to the meeting on this particular issue, the appellants had asked for 15 minutes to state their support of the appeal and that was granted. So you have 15 minutes from the time that we get going. I assume we're going to start with Mr. Koffel. Are we going to start with you?

MR. KOFFEL: That is correct.

MR. GOLINVEAUX: So, Mr. Koffel, please begin by introducing yourself and proceed with your opening statement in support of your appeal.

MR. KOFFEL: Bill Koffel, Koffel
Associates, representing LBA. Also a consultant to AHRI, but not representing them here this afternoon. I am also the submitter of the 1653 and 1654. However, I want to fully recognize that that was submitted on behalf of the task group that was requested by the Standards Council. The TIA merely has my name because I was the one tasked to prepare, along with a smaller sub task group of the task group, to prepare the TIA.

What I think you will hear today, either in the written documentation or in the testimony here this afternoon is that although there was not a consensus in the task group that you had to have appointed resulting in TIA 1653 and 1654, the task group did eventually reach consensus. CMP 2, however, is influenced by representatives of the GFCI industry and their closest allies. Data has been submitted to CMP 2 that supports expanding the TIA through all HVAC equipment. No data or research has been submitted supporting the GFCI industry's claim as to the number of fatalities. The CMP 2 members and GFCI
manufacturers were well aware of the conflict in the standard when the requirements were first placed in the NEC in 2020. The conflict applies to all HVAC equipment, not just power conversion equipment. And, lastly, some participants have not followed the NFPA guide for the conduct of participants in the NFPA standards development process.

So let me first address the issue of GFCI influence. I am a member of the life safety technical committee on fire protection features. That is the committee that establishes fire stop requirements in the life safety code just like the NEC establishes the GFCI requirements. There are -- 31 percent of that committee are manufacturers as compared to 25 percent on CMP 2. However, there's only one fire stop manufacturer and there is one fire stop installer. I represent six percent of the committee membership. With CMP 2, there are three GFCI manufacturers and three installers. That represents 38 percent of the committee membership. I wonder what NFPA 101 would look like if there were seven fire stop
manufacturers and five installers on that technical committee. There are five negative votes on TIA 1653 and 1654. Three are GFCI manufacturers. One is a special expert who was previously employed by a GFCI manufacturer and maintains close ties in the GFCI industry. And the last is UL. And it was a UL representative involved in testing GFCI equipment.

Now I raised issues a year ago before this council with regard to CMP 2 member -- you just heard that on some previous appeals as well. At the time, I was told or you heard that NEMA should not be considered a GFCI manufacturer. That is a group of 325 members. That statement was not made until the final closing comment by opposition which did not give me chance to respond to that. So I would like to respond to that today.

According to the NEMA website, there are 11 members of the ground fault personnel protection product group. Eight of those members are members of the NEMA codes and standards committee, including the chair and vice chair. There are 19 members of the NEMA
codes and standards committee. They simply need a majority of those present to take a position.

So that means eight GFCI manufacturers plus two other people established a NEMA position. And, in fact, the NEMA codes and standards committee does not allow nonmembers to participate in their deliberations. I was granted an allowance a year ago to provide an informational presentation to the codes and standards committee.

Looking at the IEEE vote, the chairman of the IEEE told me that they established a position based upon the recommendation of their representative who, again, was previously employed by the GFCI manufacturer. GFCI manufacturers were present at their meeting although they did not vote. There was no HVAC interest represented at that meeting.

I want to talk a little about the task group. So the first meeting of the task group, I and others felt there's no way this group is ever going to reach consensus on this issue. The group was so diverse and the positions
coming into that vote meeting were so far apart it just seemed like this was going to be fruitless. However, under the excellent leadership of the task group chair, we did in fact reach consensus. A very strong consensus.

That task group is far more balanced than CMP 2 is with regard to this issue. In fact, there were times during the task group meeting that the chair said I want to take a poll of just CMP 2 members because I know this has to pass CMP 2. And, in fact, one of those resulted in a date in the TIAs that are being addressed here this afternoon. The AHRI members don't think a date should be in there. But they were willing to accept a date to move this forward.

Eventually we reached consensus. As I said, I was asked to chair a task group, a sub task group, to write the TIAs in the supporting statement. There were multiple requests by myself and the task group chair for GFCI representatives to be part of that task group and none accepted the invite. UL had representation on that task group, but that
individual was not able to participate in any
of the task group meetings. At the end of the
day, the task group you asked to be appointed
voted to support these TIAs with only two
negative votes. At that meeting, a GFCI
representative said but we can submit a
competing TIA, correct? Obviously they can.
And that was the answer they were given.

What is LBA's concern? The GFCI
industry created this problem in the second
revision to the 2020 edition of the NEC based
upon a single fatality. The compatibly issues
were known at that time by both CMP 2 members
and the GFCI industry. Despite that, has CMP 2
ever requested research be done? Has NEMA
every initiated any research to address this
issue? Despite that, NEMA's position is that
they fully expect HVAC manufacturers and
certification bodies to implement necessary
actions without further HVAC requests for
sunset date extension of a permissive
allowance. Why is it everybody else's issue to
deal with? Why does the GFCI industry not feel
that they should be part of the solution?
And with regard to the date, the task group has clearly, in our supporting statement, recognized that September 2026 may not be long enough. To a question that was asked in the last appeal, UL has mentioned it's going to take five to six years to achieve compatibility between the standard for GFCI and HVAC equipment.

Let me just summarize for now the points I want to make and then I'll yield to others. As a committee member, NFPA technical committee member, I appreciate the fact that the council typically defers to their technical committees. However, in this instance, you asked for a balanced task group to address issue and submit technically supported TIAs. The task group did that. With a multipage supporting statement with a bibliography of the technical references that would be considered by the task group. The competing TIAs, 1656 and 57 have absolutely no technical support submitted for those TIAs.

The correlating committee has voted that there's no correlation with 1653 and 1654.
If a task group report had been presented at the second draft meeting of CMP 2 -- and task group activities were deferred until after the second draft meeting -- but if that report had been submitted to CMP 2 and the voting was the same as it was on the TIAs, there would've been a second revision consistent with the TIAs. Because the TIA passed by more than two-thirds but did not achieve 75 percent.

I don't want to repeat things that you've heard in the AHAM appeal. But you already did hear some comments that I think are relevant. Twenty-three states have already spoken on this issue and has modified the requirements of the NEC. GFCIs are only evaluated at 60 hertz. I think you're going to hear that that is part of the problem the task group did.

So it's time for me to encourage you to issue TIA 1653 and 1654, and do not issue TIA 1656 and 57 unless you don't issue the two we've requested you to issue. And if you do issue 1656 and 1657 just as last year, that is simply going to be a partial solution to the
MS. KOBAN: Mary Koban, representing AHRI. AHRI strongly recommends that the Standards Council move forward with TIA 1653 and 1654. Why? There the four reasons why and I'd like to highlight those. First, the incompatibility issue notified the Standards Council last fall. The Standards Council directed the NFPA staff to form a task group to address the issue, right. So this broad-based task group came together with a strong consensus with TIA 1653 and 1654.

However, Code-Making Panel 2 chose to ignore the task group and issue an nonconsensus TIA. What was the rationale for this step? Why did the NFPA Standards Council appoint a task group to determine consensus if Code-Making Panel 2 ignores that group. What is the point of that group coming together? My members are very frustrated by trying to understand that rationale.

Second, the historical safety of properly installed and listed and labeled HVAC equipment for more than 40 years equipment to
UL 1995 does not indicate the need for additional GFCI protection until these compatible issues are resolved. Listed HVAC equipment the manufacturers' installation instructions have been proven safe as evidenced by more than 120 million units currently in service. And we're talking about one incident of a fatality with a improperly installed unit, right. So we're talking one incident and more than 120 million units currently in service.

Third, GFCI standards are not consistent with regards to when the GFCI may trip or must trip. And this is really a key point, right. UL 943, this is the standard that governs GFCI protection, is not even close to completion. That standard is not able to sufficiently address high-frequency GFCIs. Therefore, it's erroneous to imply that GFCIs are ready for prime time, right. The HVAC equipment is not going to be compatible and be able to intersect with this standard because that standard is not done yet. So how will the equipment manufacturer move forward if the UL 943 is not together.
One other thing I would like to note is Mr. Reyes (phonetic), the UL member to NFPA task group, noted that the resolution of the standard as seen here in this ballot is likely to take more than five years. So that gives us that point of reference, why we're saying at least five years. So how can my AHRI members make the equipment when standards still in flux? The lead time to get new HVAC products through completion is still several years.

And, finally, CMP 2 continues to ignore the nuisance field trip data associated with six feet of equipment. Data was presented by HVAC manufacturers and installers and it was discounted while other unsubstantiated data appears to be overly weighted. Unfortunately, CMP 2 is losing credibility, and we hope that NFPA Standards Council can rectify this issue. Therefore, we ask the Standards Council to please do the right thing. Move forward and issue the TIA 1653 and 1654. And I want to hand it over now to Ed who, I think, has some real-world experience to share with you.

MR. LEHR: I'm a rookie here. So bear
with me. This is my first NFPA participation.
I was a member --

MR. GOLINVEAUX: Introduce yourself
for the record.

MR. LEHR: Ed Lehr, representing ACCA.
I am a HVAC contractor master, a HVAC
contractor master electrician, and a registered
professional engineer in Pennsylvania. I
wanted to cover the task group, the
unenforceable situation we'll have if 57 and 58
become the NFPA rule, how common ECMs are and
how much more common they're going to be by the
start of next year due to higher efficiency
standards. What a nightmare this will be for
the people who participate in construction as
well as the customers. The nature of the
single stage and multistage HVAC equipment is
much different than the types of items that
were referred to as not being a problem in
GFCIs. And if I knew I could get the money
back for every GFCI I took out that
malfunctioned, I would have kept them instead
of throwing them in the dumpster. And
air-conditioning is not a luxury. People take
refuge in their homes. They have medical conditions and they need the air-conditioning. We deal with a lot of emergencies that prove that.

So with respect to the task group, great experience, a wide variety of use. The first session was who are you and what do you do and what do think about this. And based on that, I agree with Bill, never would have thought that would've been an agreement. But we ended up with 1653, 1654. We voted on that. There where are only two negative votes from the GFCI manufacturers when that vote was taken. So the reason that there was a consensus reached is there was a lot of data exchanged and is attached to the TIAs. A lot of people's experience. The inspectors talk about what their job would be like if they were working with the electrical contractors, et cetera. So that's how these came to be.

And I'm disappointed that Code Panel 2 agreed at a 69 percent level but because of the timing of the result of the task group, we were confronted with a 75 percent hurdle. And Bill
talked about how difficult that would be.

The 57 and 58, if I got those numbers, right. 56 and 57. They limit the exception to power conversion equipment for speed control for compressors. The bad news is there are already units out with compressors with power conversion equipment and it's not for speed control. But the physics doesn't know that only speed control application is exempted. So these units will trip off for the same reason that there was agreement that power conversion for speed control should be exempted.

In addition to that, the fan motors on the outdoor units are ECM motors in many cases because those motors provide the same -- do the same job using less electricity. And the new standard that takes effect January 1, 2025, one of the tools that manufacturers have to get there is to start using the more expensive ECM motors than the permanent split capacitor motors that they use in general now.

So that has -- that means over 60 percent, 50 to 60 percent of the outdoor units sold starting in next year, 2023, will
have power conversion equipment, but we're only excluding eight to ten percent. So a lot of the units are going to be tripping. I want to talk about the single stage and two stage. The problem with the compressors that are power conversion equipment is they trip so often it's like a -- it's like thunder when somebody's trying to talk. You can't realize what's happening with the single-stage units because the flood of complaints is so great from the units that are tripping all the time that have the power conversion equipment.

We submitted from the Texas group statistics on the tripping of single-stage units. One of the reasons that that may happen is that the compressors in outdoor units, they sort the power at the point of application. The inrush gets so high on those that in a lot of the existing homes the lights dim when the air conditioners come on. Well, there's no data that says that that won't disturb the performance of the GFCI. In fact, the task group requested the data that justified the original adoption of this section and there was
no test data. And that's part of the record of
the task group so.

MR. GOLINVEAUX: Thank you. With no
one opposing the appeal, any questions from
council? I'll start with Jim.

MR. QUITER: Jim Quiter, member of
council. This is a real simple one. Sometimes
task groups are small, and sometimes they're
big. We heard there were two negative votes.
You never said how many positive votes there
were.

MR. LEHR: I believe it was 16. I
think there were 18. It might have been 14 to
2 or 16 to 2. I don't remember exactly.

MR. KOFFEL: Bill Koffel, Koffel
Associates. There is no formal record of that
vote since it was done at this task group
meeting, but it was an overwhelming majority.

MR. LEHR: Because it looked so
impossible at the start, that's why I was
clearly surprised that there were only two
negative votes. I remember that clearly.

MR. GOLINVEAUX: Rich.

MR. GALLAGHER: Rich Gallagher, member
of council. A question for Mr. Koffel. Would you be able to characterize the membership of the task group as compared to Code-Making Panel 2, how the makeup was different and may have resulted in different outcomes.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing LBA. I'm not going to get the exact numbers correct. But what I can tell you is that there were three members of the HVAC equipment manufacturers. I believe there were three GFCI manufacturers. As Ed indicated, there were HVAC contractors. There were electrical contractors. UL was represented. CPSC was represented. Leading Builders of America was represented. National Association of Homebuilders was represented. There were some other interested parties from CMP 2 and I think the correlating committee. But I would have to go back to the original task group list to give you exact numbers.

MR. GOLINVEAUX: Follow-up?

MR. GALLAGHER: Yes. Rich Gallagher, member of council. Just a follow-up. How does that compare against the CMP 2 in the makeup of
the committee?

MR. KOFFEL: Bill Koffel, Koffel Associates, representing LBA. At the time of the second draft meetings as you heard in previous appeal, there were three manufacturer representatives on CMP 2. They were all GFCIs. Since that time, and this occurred before the TIAs were processed, Greg from AHAM was appointed to CMP 2. So there are now four manufacturers, one of which is Greg who represents AHAM. I think there's an application for an AHRI member that you will be potentially considering at this meeting. There were, to the best of my knowledge, no HVAC contractors on CMP 2. There are three electrical contractors on CMP 2. National Association of Home Builders is on both. Leading Builders of America is only on the task group.

MR. GOLINVEAUX: Okay. I'll go to Ken first.

MR. BUSH: Thank you, Mr. Chair. Ken Bush, member of council. Somewhere along in the testimony, a statement was made that they
thought that the TIAs 1656 and 57 were unenforceable. Could someone expand on that point for me as to why that statement was made as those being unenforceable.

MR. LEHR: Because — Ed Lehr, representing ACCA -- because it only excludes power conversion equipment for speed control of compressors. There's power conversion equipment for compressors that is not there for speed control. There's ECM fan motors that are not there for speed control of compressors. In package units, which are used in the southwest and with mobile homes, there's also ECM blower motors, which do not meet that definition. So the code authority who will try to enforce it won't be able to identify what exactly is speed -- power conversion for speed control of the compressor and will be confronted with other power conversion and will actually, according to the rule, the way it's written, have to force them to put GFCI on equipment that has a higher leakage current than the GFCIs tolerate. So these things will trip and the code official will be confronted with
having to take it on himself to do something other than the written code, which is a liability issue nobody wants to be in.

Same situation with air-conditioning contractors and electrical contractors. They won't be calling the township office that's closed on the weekend; they will be calling contractors and insisting that their unit doesn't function and want action taken. But by the letter of the law, we will not be able to do that. And that's where there was a reference to the fact that homeowners will now be tempted to go in and bypass these devices. So that's what the enforceability situation is.

The presence of ECM motors is not part of the submittals of equipment. So code reviewers -- plan reviewers won't know it. Builders won't know it. Contractors won't know it, even HVAC contractors. ECM motors are used in some capacities in model one; they're not used in other capacities in model one. You get the version with ten digits that ends in an A, and it has the ECM. If the one that comes to you ends in a B, they may have taken the ECM.
out and done something else. So it's -- it's a nightmare.

MR. GOLINVEAUX: Okay. Follow-up?

MR. BUSH: A follow-up real quick.

Ken Bush, member of council. Does the TIA 1653 and 54 address that issue and clarify it?

MR. LEHR: They exclude listed HVAC equipment. And it's because of this nightmare with the power conversion as well as the statistics that show that there is a tripping issue with single-stage and two-stage equipment. And there have not been tests done to identify exactly what those issues are. But the problem is there.

MR. BUSH: Thank you.

MR. GOLINVEAUX: And I'll have you introduce yourself after the conclusion of that.

MR. LEHR: This is Ed Lehr, representing ACCA. I'm the person that doesn't identify myself.

MR. GOLINVEAUX: Okay. Thank you. We'll get there. Jeff.

MR. FOISEL: Jeff Foisel, member of
council. Mr. Koffel, can you help me out a little bit here and go back over where you were talking about the balance of CMP 2. I jotted down you said like 38 percent were influenced or GFCI-related. And can you help me reconcile that with the voting.

MR. KOFFEL: Bill Koffel, Koffel Associates representing Leading Builders America. CMP 2 is balanced according to the NFPA definition of balanced. There were three. There are now four manufacturers. That is 25 percent of the membership of CMP 2. The point that I was trying to make is the influence that GFCI manufacturers have on CMP 2 between three manufactures, three installers, which represents 38 percent of CMP 2 and a special expert who has had past and continues to have close ties with the GFCI industry.

MR. GOLINVEAUX: Follow-up?

MR. FOISEL: So quick follow-up.

Looking at the voting members, five against and then you just named seven.

MR. KOFFEL: Bill Koffel, Koffel Associates representing the LBA. One of the
interesting things that happened with the task
group is that the electrical contractors who
had previously opposed the TIAs now supported
TIA 1653 and 1654 both in the task group and in
CMP 2. We had five negative votes from three
GFCI manufacturers, one special expert with
past and current ties to GFCI industry, and a
UL representative.

MR. GOLINVEAUX: Mr. Quiter.

MR. QUITER: Jim Quiter, member of
council. Just for the record, it's been
brought up a couple times there is an
application on our agenda. And that is indeed
true. There is an application on our agenda
that we'll be dealing with later in this
meeting. Thank you.

MR. GOLINVEAUX: Are there any -- yes.

Suzanne.

MS. GALLAGHER: Suzanne Gallagher,
NFPA staff. Mr. Koffel, you mentioned that you
had raised concerns about CMP previously. Can
you elaborate on that?

MR. KOFFEL: Bill Koffel, Koffel
Associates, representing Leading Builders of
America. That concern was expressed last August during the appeal hearing on the TIAs that were under consideration at the council meeting at that time.

MS. GALLAGHER: Thank you.

MR. GOLINVEAUX: Dawn.

MS. BELLIS: Going back to the negative effect --

MR. GOLINVEAUX: Introduce yourself.

MS. BELLIS: Sorry. Dawn Michele Bellis, NFPA staff. What would be the negative impacts -- you've talked about if the TIA passed, if those go in, there's an effective date. Could you again clarify what the negative impact would be if those were issued by council.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing LBA. I believe there is a consensus amongst the task group members to go ahead and issue it with the effective -- the date effective September 2026. In our supporting statement, we state that we may have to revisit the issue. But the data is in there for two reasons.
First off, the strong hold taken of the CMP 2 members who were on that task group and that they all -- I don't know if they all -- but there was a strong consensus that a date had to be in there for the past CMP 2. Secondly, as stated in our supporting statement, there was an interest in including a date to encourage all parties, not just the HVAC manufacturers, but all parties to try to come to a resolution on this issue. But we clearly state and the task group clearly stated we may have to revisit this in 2026.

MS. KOBAN: Mary Koban. May I just respond to that? Because let me just show with you -- share with you what I tell my members, right. So let's just kind of do a walking time line. UL 943, which is the standard that governs the GFCI is five years. So let's just write that down. Today is, what, 2022, plus five. Right there that's 2027. Now, my members, they can't automatically on a dime pull a project all the way through the standard process, right. So they have to do their supply chain and everything. So the quickest
they can do anything is 18 months.

Now I'm already in 2027, 2028. That's just basic math. That's not even this UL 943 matched up with a large equipment standards.

UL 943 will have to match with UL 1995 because that equipment is until December 31st of 2023. It will also have to match up with UL 2-40, which is the main standard for HVAC equipment because we're switching over. And it will also have to match up to AHAM's equipment, UL 2-24. And then UL 2-89, which is refrigeration. So it's going to have to fluctuate with all of those.

In my best estimate, right now, we're at 2028 to 2029. That's if my members are lickety-split and get everything done in 12 months after these are all correlated. So that's an issue right there. And you have it verbatim that the UL representative said that these standards are not going to be ready for five years or more. How in the world people make equipment when they don't have the standards for five years? That's impossible. Sorry. I'm a little bit passionate about that.
MR. GOLINVEAUX: Okay. Are there any further questions from council? Mr. Quiter.

MR. QUITER: Sorry. I have one more. Jim Quiter, member of council. You had concerns about the membership of Code-Making Panel 2. Since then one person has been added and another one is on our agenda. And I don't know which way that will go. But if they are added, does that take away your concerns, or do those concerns still exist?

MR. KOFFEL: Bill Koffel, Koffel Associates, representing LBA. I think that will help. I think part of the concern is the scope of CMP 2. It is challenging to get interest from HVAC contractors and HVAC manufacturers to participate in CMP 2. But that will certainly help.

MR. GOLINVEAUX: All right. Dawn.

MS. BELLIS: Just a follow-up on Jim's question. Are there specific groups we should be -- you mentioned HVAC contractors. Are there specific other groups that we should be recruiting to CMP or reaching out to those organizations or groups?
MR. KOFFEL: Bill Koffel, Koffel Associates, representing LBA. I guess I might encourage you to at the membership of the task group and to see if there are parties there that might be interested in also serving on CMP 2.

MR. GOLINVEAUX: Are there any further questions from council? Seeing none, I am going to ask you to, since there was no opposition to the motion, if you could summarize in a five-minute time frame, if that's possible.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing LBA. I have nothing further to say than my written statement and what I said today.

MR. GOLINVEAUX: Thank you.

MR. LEHR: Ed Lehr, representing ACCA. I'd just like to remind the council that the CM2, Code-Making Panel 2, did vote 69 percent in favor of 1653 and 1654. But due to the timing of the process, we had a -- that's it.

MR. GOLINVEAUX: Okay. Thank you. As we conclude the hearing, let me inform you as
to what happens next. The council will deliberate and reach its decision in executive session. Once the decision is made, that decision, including the background or any other information council believes relevant, will be prepared by NFPA staff and published by the secretary of the Standards Council on the Standards Council web page, www.NFPA.org/SC2022, and in accordance with the regulations governed by the development of NFPA standards.

Additionally, the decision will be sent out to the appellants and the chair of the responsible committees directly. The official opinion and decision of the council is that as published by the secretary. No other communication shall be considered the council's decision or position. Any questions regarding the decision should be addressed with the secretary.

On behalf of the NFPA standards council, I would like to thank all of those who participated in today's appeal hearing. Your involvement, as well as all the stakeholders',
is important to the NFPA standards development process. This hearing now ended. Thank you very much for your time.

MR. KOFFEL: Thank you.

MR. GOLINVEAUX: Council is going to go into executive session here. I believe the next hearings were not showing up so there’s no official hearing requested. So we will go into executive. For all the guests that have beared with us the entire day, thank you for your time and your involvement with the NFPA process. We appreciate you being here. Thank you for your time.

(Whereupon the hearing was adjourned at 5:10 p.m.)
CERTIFICATE

Commonwealth of Massachusetts.
Middlesex, ss.

I, LAUREN M. BUZZERIO, a Certified
Shorthand Reporter and Notary Public in and for
the Commonwealth of Massachusetts, do hereby
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IN WITNESS WHEREOF, I have hereunto
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