# INDEX

<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-8-6-c</td>
<td>5</td>
</tr>
<tr>
<td>12-8-25 through 33</td>
<td>14</td>
</tr>
<tr>
<td>NFPA 13</td>
<td>16</td>
</tr>
<tr>
<td>NFPA 13D</td>
<td>18</td>
</tr>
<tr>
<td>NFPA 13R</td>
<td>40</td>
</tr>
<tr>
<td>NFPA 25</td>
<td>66</td>
</tr>
</tbody>
</table>
PROCEEDINGS

THE CHAIR: Welcome, everyone, to the afternoon session of the NFPA Standards Council. We have a series of hearings this afternoon. My name is Jim Pauley, Chair of the Council.

In a moment I'm going to ask everyone around the table to introduce themselves as well as everyone else in the room.

And I would remind everyone that we are recording these proceedings today, so make sure that before you make any remarks, that you preface those with your name so that we can ensure we attribute those appropriately in the record. Let's go ahead and do the introductions. Amy?

MS. CRONIN: Amy Cronin, NFPA staff and Standards Council secretary.

MS. FULLER: Linda Fuller, NFPA staff.

MR. BELL: Kerry Bell, member of Council.

MR. RICKARD: John Rickard, member of Council.

MR. HARRINGTON: J.C. Harrington, member of Council.

MR. SNYDER: Michael Snyder, member of
Council.

MR. LEBER: Fred Leber, member of Council.

MR. MILKE: Jim Milke, member of Council.

MR. BLISS: Donald Bliss, member of Council.

MR. McDaniel: Danny McDaniel, member of Council.

MR. BRADLEY: Randy Bradley, member of Council.

MR. OWEN: Richard Owen, member of Council.

MR. HUGGINS: Roland Huggins, member of Council.

MS. BRODOFF: Maureen Brodoff, NFPA staff and legal counsel to the Standards Council.

(The following NFPA staff members were recorded as present:)

Bruce Mullen, NFPA's executive vice president;

Christian Dubay, Ann Coughlin, James McDermott,

Lauren Wallach, Martha Curtis, Susan Vershak, Nancy Pearce, Bill Burke, Dave Richardson, Sandra Stanek,
Mr. Koffel, William Koffel, Koffel Associates.


Mr. Linder: Ken Linder, Swiss Re.

Mr. Pilette: Maurice Pilette, Mechanical Designs Ltd.

The Chair: Great. Thank you. The first hearing that we have is agenda item 12-8-6-C. This has to do with Certified Amending Motion 72-5.

And just for reference, this was an amendment that was made on the floor of the annual meeting that passed on the floor, subsequently passed the Technical Committee and then failed the Technical Correlating Committee ballot.

And so, Mr. Pilette, I understand that you're here to speak to this particular issue. I'm not sure I'm going to try at this point to sort out who's the appellant and who's not given the floor action, the TC action, and the TCC action.

But is there anyone else that wants to
speak to this particular issue? Mr. Pilette, I understand you're speaking today essentially to overturn the results of the Technical Committee itself and their ballot and to --

MR. PILETTE: Uphold the TCC's as written.

THE CHAIR: So nobody else to speak on the other side. So Mr. Pilette, if you'd like to take a seat at the end of the table we'd be more than happy to just give you, you know, five or ten minutes for you to make any opening remarks that you'd like to make on this.

I'll open it up to questions from members of the Council and then we can close with any remarks that you might have.

MR. PILETTE: All right. As chair of the NFPA 4, the new document that's being written as we speak, we had received a directive by the Council at some point not too long ago as to the scope and what we would do and what NFPA 72 would do, and then we proceeded with that directive in the development of 4 as we're going forward with it.

The indication in the TCC of 72 went
along and took that directive and proceeded accordingly to outline what 72 would look for in the future and that there wouldn't be a correlating -- or eliminate the conflicts between the two documents.

As it turns out, doing -- and it went forward that way doing the actions at the annual meeting and it was overturned, you know, to bring back the text that would create a conflict with NFPA 4 as it's going forward.

And the basis of my appeal is I'm here today to say to -- is to support this appeal and to go back and recognize the TCC's effort as originally written to avoid that conflict between the two documents and that hopefully the Council can review their previous decisions and directive because without -- in support of that directive, and with the TCC and NFPA 4's proceeding, then we'd end up having two documents on the street that would be competing with each other and getting conflicts with each other and in my opinion would not be good for the industry as a whole.

THE CHAIR: Thank you. We'll open it up to questions from members of Council. I guess just
so that I'm clear on what you're asking, the results of this, because it passed on the floor, passed Technical Committee, failed Correlating Committee, the default action would be for it to go back to the previous edition text.

Your appeal really is to go back to what the Correlating Committee's action was after the ROC stage where they took some action to change what the Technical Committee did, then in the Correlating Committee, to comply with the Council's direction relative to NFPA 4.

MR. PILETTE: Correct. And then NFPA 4 is proceeding on that same directive by the Council, so you end up having the TCC of 72 and NFPA 4 in sync with each other proceeding in the right direction.


MS. BRODOFF: I'm going to have to ask the question. How does the TCC action differ from return to previous text?

In other words, I guess my question is would returning to previous text also comply with the general spirit of the Council's directive.
MR. PILETTE: No, because they have -- the previous text has language that would compete with NFPA 4 for integrated testing.

THE CHAIR: Other questions. Mr. Owen.

MR. OWEN: Richard Owen, member of Council. If we went along with your appeal and removed that part, what would somebody -- and issued 72 without that particular part in it, what could somebody do in the meantime until 4 is actually adopted assuming that you have the requirements in 4 when it is adopted?

MR. PILETTE: Well, by the time -- We think there would be a very short period that that would occur, and then the adoption stage of a new document historically nationally wouldn't be that severe to cause that type of a conflict.

And then NFPA 4, if there's no opposition and it meets the requirements and the procedures set forth, then they'd be on the street virtually almost at the same time probably.

And the industry gets by now. The interesting thing about it is that integrated testing, if you were to ask somebody how do you
provide that and do that function, really nobody
knows that you go to NFPA 72. That's not the title
of the document.

You know, where do you find the
requirements? So you in effect go to NFPA 72, fire
alarm code, and then you've got the industry as a
whole, everybody included, you know, that deals with
this type of a system has to go through that document
and realize that, Okay, there's like testing
functions here, but how would you know that to begin
with versus when NFPA 4 will be clearly indicated as
a standard for the integrated testing of fire safety
systems.

THE CHAIR: Mr. Harrington.

MR. HARRINGTON: J.C. Harrington, member
of Council. If we waited until NFPA 4 came along,
along the same lines as Mr. Owen's question -- If we
waited until NFPA 4 came along, and so during that
period of time, would there be -- between whatever
guidance is in 72 or other documents that are out
there, other supporting or supplemental documents,
is it your view that there'd be confusion in the
marketplace as to how to do this testing or what NFPA
document would govern or what would supercede what? Would that result in confusion as to how that testing is done and who owns the responsibility as we wait for NFPA 4 to come along?

MR. PILETTE: Personally I've got to speak to the New England area and what I've been exposed to and observed in dealing with the subject matter, but it's resolved.

You know, the industry resolves itself and works together and comes to terms with it either through the building code process and enforcement process or through their particular standards themselves.

Massachusetts, you know, has adopted the 2010 edition but the other New England states have not. So the confusion exists nationally now because of the cycles and when a particular standard is adopted locally or statewide and everything else.

But through the building code process, the enforcement process, and the design community, they make it work. Things are not severely broken.

But going forward with NFPA 4, it would clear up a longstanding issue that's been in the
industry for numbers of years now, and then to go back against and not recognize the Council's directive that -- to really define the scope would be a step backwards.

You know, here we want to go forward to continue that process and to have a very worthwhile document that would bring all the non-identified issues that deal with this important safety factor into one document that everybody can say, Okay, this is the document I use to accomplish the task at hand.

THE CHAIR: Other questions? Mr. Milke.

MR. MILKE: Jim Milke, member of Council. I see one of the reasons for a negative vote from a Technical Committee member is he felt integrated testing was outside the scope of 72. That's a true statement?

MR. PILETTE: Right. You know, 72 has been doing some of that stuff over the years. There's been code creepage that has occurred in that particular document.

It didn't start off that way, but eventually because there was no such thing as an NFPA
4 and NFPA 3, and then realizing the complexity of these systems over a period of time in very -- even small buildings, although when you get to very complex buildings like malls, high-rise buildings, you know, airports, you know, the integrated testing and having a very clear document defined of how it's done and who can do it and things of that nature, you know, brings a much unified approach to everything, even from an enforcement point of view.

THE CHAIR: Other questions? Okay.

Seeing none, any closing comments on it, Mr. Pilette?

MR. PILETTE: I would urge the Council to support their directive as originally done from last year and to uphold my appeal so we have consistency in the workplace as we go forward and finalize with NFPA 4.

If it doesn't, you know, I have my own committee that we're going for the first draft next month. And then if there should be something different than that, then I'm not too sure what my directions are going to be to the committee at that point if we take a reverse move.

THE CHAIR: Thank you. With that, I'm
going to close out the hearing on NFPA 72 and just
remind everyone that the decision the Council will
issue is a written decision by Ms. Cronin.

No member of the Council or staff will
convey any part of that decision or the deliberations
of the Council. That written decision will be the
only way that that is communicated.

So with that, thank you, Mr. Pilette, for
appearing on this issue and for your participation in
the process.

But we will move directly into the next
agenda item which are a series of TIA's on the issue
of antifreeze and sprinkler systems.

And can I get an idea of -- Mr. Linder, I
understand you're speaking on this issue?

MR. LINDER: I'm here essentially to
discuss any correlation issues that come up between
the four documents. I'm here really to answer
questions.

THE CHAIR: So Mr. Pilette, you're going
to speak on this topic as well or --

MR. PILETTE: Well, I'm here to answer
any questions the Council may have on what the
committees have done on 13 D and 13 R.

THE CHAIR: Okay. And Mr. Koffel, you're here to speak on behalf of NFPA 25?

MR. KOFFEL: That is correct.

THE CHAIR: And Ms. Valentine, are you going to speak to these TIA's?

MS. VALENTINE: Yes.

THE CHAIR: Do we have any recusals from Council? Mr. Huggins.

MR. HUGGINS: 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, deliberation, or voting on this matter, and this matter incorporates items 12-25 through 12-33. Thank you.

THE CHAIR: Thank you, Mr. Huggins. With that we have four TIA's. 13, 13 D, 13 R, and NFPA 25. What I'm going to do is I'm going to open it up with the TIA with NFPA 13 and entertain any discussions on that or in general any discussions that people would like to make at that point about the issue of antifreeze and the TIA's.

I'll subsequently go on through the other
TIA's but would ask as we do that, not that we repeat the same comments again, so if you have some general comments that you'd like to make up front as we do this first one about antifreeze and sprinkler systems in general, we'll do those up front and then try to cover specifics under each one of those TIA's or any variations that we have.

So with that, let me put the first TIA on the floor. It's TIA Log 1066 on NFPA 13, and this particular TIA has passed the Technical Committee and the Technical Correlating Committee ballots to be issued.

And for any of you that wanted to comment, again I remind everybody to preface your remarks with your name so that we can capture it appropriately on the record.

But would anyone like to comment in the general sense of these TIA's or on this TIA for NFPA 13 specifically? Everybody's happy. Okay.

Is there questions from the Council members with respect to the TIA at this point that we would like to get on the record? So no comments on 13?
Ms. Brodoff was just asking the question and maybe, Mr. Linder, you might be in the best position. Could you for the purposes of the Council simply summarize this TIA with respect to NFPA 13.

MR. LINDER: Certainly. Ken Linder. I'm chair of the NFPA 13 Correlating Committee. And first of all, let me apologize. I broke my glasses as I got here and I can't see without them, so I'm trying to wear my sunglasses when I need to read.

There's been a lot of discussions on antifreeze in the various sprinkler committees over the last several years, and given the latest series of test reports, the 13 Committee, installation criteria committee, that is really responsible for this TIA, and the Correlating Committee, realizes that there are questions that still need to be answered.

We have a lot of test results that look very favorable and a few test results that's don't look very favorable.

So the 13 Committee has taken what they think is a conservative approach and essentially said that if you're going to use antifreeze in new
 sprinkler systems going forward, they need to be
listed antifreeze solutions and they need not to
contribute to the fire when they operate as
combustible antifreeze systems do. And that
essentially is what the 13 TIA is intending to do.

There's some appendix material that
discusses some of the testing that was done, but
essentially our goal here is to move forward with
listed antifreeze systems only that will not impact
the size of the fire when they operate.

THE CHAIR: Great. Thank you very much.

Any questions on this TIA from the members of the
Council? Okay. Thanks, Mr. Linder.

I will move onto the TIA -- I guess,
Ms. Valentine, since you're not associated with any
one of the TIA's did you have any comments that you
wanted to make on the 13 TIA.

MS. VALENTINE: Not on the 13.

THE CHAIR: Thank you. So I'll move onto
the TIA for NFPA 13 D and maybe, Mr. Pilette, I might
ask the same if I could.

Could you perhaps summarize this TIA
for us, for the Council, and then we'll go with any
MR. PILETTE: Well, after many, again, testing protocols and the results of the testing relative to antifreeze for one- and two-family dwellings and multiple task groups, multiple reviews of information and everything else that got put on the table, the committee saw that the 13 D one- and two-family homes is a different type of a situation than you would see as occur in commercial type buildings.

And to address those issues it went forward with a requirement of a listed antifreeze but gave a default for code enforcement to recognize under special conditions the use of antifreeze, a premixed antifreeze, to address the problems in the cold weather states.

And the enforcement community on the committee spoke loud and clear that they wanted some sort of default to basically achieve that goal and to provide residential sprinklers in these homes.

Half of this country is in cold weather states, and also we heard clear from Canada itself that uses NFPA 13 that it would have to have some
sort of method or gave some sort of relaxation, so to speak, on special conditions that would be approved by code enforcement to allow antifreeze, a premixed antifreeze, in certain conditions.

Otherwise it would defeat their entire residential sprinkler programs in those cold weather states.

And so the committee in effect said that you're to use listed antifreeze but there would be an exception to that rule.

If you could discuss and you had a design that you would review with the code enforcement and if it met certain conditions that you couldn't do it any other way, then there would be a provision just to use the premixed antifreeze based on the results of the test programs for residential sprinklers, which the committee saw that test program as very productive results that addressed the residential sprinkler issue and was very comfortable with the results of that test program which came out of it to provide a certain percentage of factory premixed antifreeze to protect single-family homes, even though the percentage may be a little bit different.
from existing homes versus new homes, but it still met -- it was under the framework and still met the requirements of the Foundation's research and UL's research on the issue at hand.

And again, residential houses are just totally different than commercial-type buildings themselves.

And what the committee came up -- The committee voted -- you know, spoke very loud and clear that this is the proper way to go to maintain residential sprinkler systems as a -- you know, to go forward to promote residential sprinklers as well and to allow it to occur in cold weather states.

Some states spoke very clearly on that, that they needed something to allow them to approve plans using antifreeze that may not be listed at some point in time -- until some point in time in the future.

THE CHAIR: Thank you. Mr. Linder, I guess if I could ask this, any comments from the Correlating Committee?

I mean, what's being done in 13 D is different than that that's in 13 itself, but anything
from the Correlating Committee on that?

I mean, Mr. Pilette indicated what the committee actually did. I'm interested in more of the correlation part of it.

MR. LINDER: Sure. Ken Linder. The Correlating Committee felt very strongly that 13 and 13 R were kind of -- needed to be in sync and needed to kind of deal with the issue the same way.

When we get to 13 R, you'll see it just refers right back to the language that NFPA 13 wants to use, so I think those two are in sync.

The Correlating Committee also recognizes that one- and two-family homes are a little bit different. And we also recognize that when you go back and you look at especially the first test series where solutions up to 40 percent glycol and 50 percent glycerin just did not ignite and performed perfectly well, so --

And in those particular cases with the residential occupancy and the smaller fires and the fact that all of the testing there seemed to work real well -- the testing that failed was with standard spray sprinklers, with different fire sizes,
and different clearances, not really residential fuel packages -- the Correlating Committee felt comfortable that 13 D could be a little bit different and it might make sense to allow a limited range with the residential sprinklers that had been successfully tested under parameters where we were pretty comfortable -- I shouldn't say pretty comfortable -- they're very, very comfortable that if they stay within those concentrations we will be all right.

So the Correlating Committee didn't really think that there was a conflict from a correlation perspective on 13 D but did feel strongly that 13 R and 13 should correlate.

THE CHAIR: Thank you. Questions from members of the Council? Miss Cronin.

MS. CRONIN: Amy Cronin. It appears that for existing for 13 D there is no safety factor. Is that correct?

MR. PILETTE: On 13 D existing there is -- it's 50 percent, but on new it's 48 percent.

MS. CRONIN: Right. So for existing there is no safety factor.

MR. PILETTE: Well, no. We ended up
using -- the 13 D Committee ended up using the 50 percent, the results of all of the test program.

In addition, the 50 percent was also implemented nationally, because on a bulletin by NFPA that -- it got issued using 50 percent.

So the directive into the United States where they had the antifreeze, then they use 50 percent. And so when the test programs had finished and it showed -- it showed the 50 percent but the committee wanted a safety factor based on the consistency of the factory premixed by the manufacturers, that, well, what if they can't meet the 50 percent? What if they went 51 or, you know, 49? What was the correct number?

And then we found out from the manufacturers that they could hit it on the money in some cases, and in some cases they could be 1 percent or 2 percent off, and that's how the 48 percent came about.

So in effect the 50 percent does work and then -- but since the directive and people were in the process of changing their antifreeze in existing homes using 50 percent, the committee felt
it was really unfair to all of a sudden one year later go back and tell those same people that had changed to 50 percent to now go back, dump it out and put in 48 percent.

And the committee basically took a very strong stance on that. We're not going back because the test program shows that 50 percent on the existing buildings and then the NFPA bulletin indicated 50 percent was okay.

MS. CRONIN: But it was clear that the manufacturers' deviation, we needed to account for that safety factor was my understanding, so -- but yet you guys are still allowing the 50 percent that doesn't incorporate the safety factor. That seems like that would be a problem.

MR. PILETTE: No. The committee felt that that would not be a problem because, you know, even though -- you know, the manufacturers -- in further review of the manufacturers, they've indicated that they could basically hit it right on the money.

And then, you know -- and it's a matter of if the contracting industry validates it or checks
it or goes by the certification that's on the containers, once it hits the site then it's a green light to go.

THE CHAIR: Ms. Cronin.

MS. CRONIN: A last little point on this. I remember -- I mean, I'm just going from memory. I believe there was data presented to the committee from manufacturers way back in the very beginning that it could be off by several percentage points.

MR. PILETTE: There was no written data of that nature ever submitted to my knowledge. It was phone calls and discussions and committees basically seeking that information.

And I made some of those phone calls myself and other committees did. So depending who you talk to, you know, if it was -- you know, the computerization of mixing the antifreeze, you know, was well founded by the manufacturers.

Some of them wouldn't even respond to the question that was being asked. They didn't see antifreeze as being a big market share of their market share for residential sprinklers.

You know, if you looked at it, they sold
It's like -- Antifreeze for sprinklers is like half a percent of what they sell. 1 percent. So they're only going to take limited involvement and then everything is on special order.

They recognize the issues associated with it and then a premixing went through three variations of validation.

And then we end up having indication from the contractors in the field, when they actually tested it's hitting 48 percent, you know, that they're getting the right numbers as is shown on the canisters.

Not saying that that would be the case in all cases but, you know, even when the committee Task Group -- We had two different Task Groups working on this issue when the 48 percent came about, and then there wasn't any, you know, that hard data that it should be a 2 percent drop, because some of the numbers are 1 percent, some of the numbers are zero percent, and then they could mix it 50 percent.

And the committee finally settled, after hours and hours of debate on this issue, let's use 48 percent.
THE CHAIR: Additional questions? Jim Pauley, Chair of the Council. I guess in the dialogue that I'm hearing around this topic, Mr. Pilette, I mean, you indicated that they settled on 50 percent because that there were some NFPA bulletins around that 50 percent number.

But I guess there are two things that come out of that. One is certainly I think whenever or whatever bulletin that might have been issued about existing systems, it seems throughout this process that a lot of additional information was gleaned as the process moved forward both by the committee and by others.

That being said, the point that I thought I heard you say just earlier in your comments was that I heard both, that the manufacturers could hit the number but also that they could be off by 1 or 2 percent.

MR. PILETTE: The initial discussions on it that they indicated that they could be off by 1 or 2 percent, and then going through the process of refining it and when we came through the second go-
around of the testing, this is where the
manufacturers now indicated that they could hit, you know, the numbers of 50 percent, you know, that --

Now, the committee never said that the safety factor wasn't necessary, that it was good for all new and going forward, but a decision had to be made, you know, a line drawn in the sand saying that, Hey, we've told property owners nationally to go with 50 percent, and then now that we told them to do all this at 50 percent, now we came up and we're changing the new edition to say new systems had to have, you know, 48 percent, the committee was -- you know, on a very, very wide margin said, We're not going back and asking people to again dump the antifreeze to replenish it with 48 percent as opposed to the 50 percent.

Even when the test program for residential sprinklers showed it was -- it didn't cause, you know, the issues and it was fine to use. There was no issues associated with it based on the small fire loads in homes and then what you end up finding based on the residential sprinkler program.

You know, on the 60-some-odd tests it showed to be very effective at 50 percent. As a
matter of fact, the test programs never went down to 48 percent because 50 percent did the trick.

THE CHAIR: But we could also say -- Can you say from that test program that you don't know what happens at 52 percent?

MR. PILETTE: The test program -- you know, you're correct. The test program did show if you start elevating it -- You know, I think 55 percent was the next number that it was tested at, that showed that there was ignition occurring with that, but 50 percent was fine.

And there had to be -- The committee felt that there had to be a reliance on certification of a manufacturer, you know, selling the goods and if they're saying that they were selling 50 percent, then they could deliver 50 percent.

THE CHAIR: Ms. Brodoff.

MS. BRODOFF: Is there anything in writing or any documentation from the antifreeze manufacturers that they have no -- that they hit 50 percent on the nose without any variation?

MR. PILETTE: There was no data -- no written documentation that's ever been produced that
I know of. The antifreeze manufacturers outright didn't respond to such a request, that everything is special order and then you -- and it's being produced where you're using it heavily in this state and it's coming in at 50 percent.

And the existing systems that if for some reason a homeowner decides to want to do it -- because there's virtually no enforcement on this issue. You can't enter people's homes.

So the ones that want to do it, the contractors are looking at the document and changing it with 50 percent.

MS. BRODOFF: So what's the basis for your statement a couple of times that the manufacturers have said they can hit 50 percent on the button? Where is that coming from?

MR. PILETTE: That was verbal discussions that would come from the manufacturers, I mean, some of the committee members, the contracting industry, that they could produce the antifreeze at whatever mixture and hit it accurately because it wasn't -- It's a factory premix but it was all generated by a computerized matrix process that would go through
three mixes to confirm that they had the right mixture of whatever you wanted; 45 percent, 46, 47, 50, 52, 60. You name it, they could deliver it.

And plus they had to certify it. So in order to put credence into the certification process, you know, you had to accept on some face value that they're saying that they can deliver the stuff, just like we buy or use stuff in our daily lives saying that it says that's what it is and that's what you hope's in the bottle.

THE CHAIR: Mr. Harrington.

MR. HARRINGTON: Question for Mr. Linder relating to the Correlating Committee work. With the multiple ballots that were going around for balloting for the Correlating Committee on the TIA's, one of the things that the Correlating Committee needs to weigh in on is the emergency nature of the items as to whether to issue the TIA's.

And there seemed to be a divided opinion or a divided view amongst the Correlating Committee on the different ballots as to whether they were in fact emergency nature or not.

Any view as to what causes this divided
opinion on that amongst the committee?

MR. LINDER: Ken Linder. There were a lot of TIA's going back and forth over a very, very short period of time.

And I know that some committee members certainly got a little bit confused as to what applied to what, especially when you had two competing TIA's, and did they both correlate or did one correlate and the other one didn't on both 13 D and R, because we had the ones by the committee and the ones by Dana Haagensen which would have banned antifreeze altogether.

And I think there are certainly some members that felt given that the testing that we had specifically on residential sprinklers and the good performance that we had for the residential sprinklers may not have made it critical that we deal with it immediately because the 50 percent that was allowed by the last TIA was supported by the test and everything passed.

And I think that's part of the reason for some of the emergency nature piece.

THE CHAIR: Other questions? I guess I
just want to summarize to see if I have my head
around what's been said thus far.

And there's still seems to be some level
of inconsistency. And I understand that the
committee -- So the committee basically said 50
percent for existing systems because we've been told
that they can hit 50 percent, you know, if that's the
number that we ask for.

But isn't that the same premixed solution
that goes into the new systems and the committee felt
the 2 percent safety factor needed to go in on the
new systems?

And if I've got that part right, it
almost sounds like the only rationale for landing at
50 percent was because of a bulletin that NFPA issued
when this first came up. I mean, that --

MR. PILETTE: My recollection with the
committee when this whole issue came up, that that
was the rationale, saying, We're not going to
revisit.

The committee basically, you know, had
something out there to go with the 50 percent to cure
a problem that systems had 60, 70, and 80 percent
sometimes pure antifreeze in some of these.

The industry was all over the place in providing -- in making the assumption that more antifreeze is better. That was the -- That's the concept that was used.

And then where -- I'm not going to take it back to the shop, I'm not going to dump it down the sewer, so where am I going to put it? I'm going to put a hundred percent pure antifreeze in systems.

So the issue going with the 50 percent that came out went a long ways in meeting the directives at that point to create a safe environment based on the testing programs that were being held with UL at that point in time.

And the committee -- I don't know if -- This is talk that went as well, whether or not we should revisit and have the same requirement for existing systems as we had for new systems at the 48 percent based on the safety factor.

And then the committee said, No. We're not revisiting. We're comfortable with what has been done, what the committee wanted to do. 50 percent for existing stays as is. And if you're starting
from scratch, you're going to use 48 percent.

And it was in that time period that the issue about whether or not the manufacturers could hit it on the money or not.

Initially started indicating that they may not, and they had maybe a 1 percent or 1 and a half or 2 percent or 5 percent. We didn't know. There was no indication or written documentation.

The antifreeze people did not come forward and basically say yes or no. So the 1 and a half percent or the 2 percent was a number that the committee picked.

They could have picked any number, but they ended up using that based on a few phone calls to the manufacturers.

No written documentation could ever come from the manufacturers of antifreeze that we know of. None of that was ever produced.

So the committee made a consensus decision on what to do with the antifreeze issue. And as we went further and further into the antifreeze questions and the TIA's and the new test programs and everything else, you know, in effect 30
committee members that had gotten to a point saying that we think we resolved and made the right decision.

THE CHAIR: Mr. Linder.

MR. LINDER: Ken Linder. I wasn't part certainly of the 13 D discussions but I do remember that 48 percent really came out of a Correlating Committee Task Group a couple years ago after the first rounds of tests became apparent, chaired by John O'Neil.

We got together and met in Baltimore and spent an entire day with a whole group of people, enforcers and some manufactu -- I don't think there were any manufacturers of antifreeze there, but there were some installers, maintainers, and contractors, and committee members trying to figure out what do we do with this.

And we certainly knew that at 50 percent it worked, at 55 percent it didn't, and somewhere in between there's a transition.

And so that group decided that we were going to go 2 percent and use the 48 percent, and that's the first time I ever heard the 48 percent
number floating around.

I don't remember whether it was in a 25 meeting or a Correlating Committee meeting or an installation criteria committee meeting because they all kind of blend together on this particular issue.

But on existing systems, if I remember correctly, part of the reason for wanting to go 50 percent on stuff that was already there is that there's another -- I don't remember if it was 8 degrees or 10 degrees in freeze protection that could be provided.

And there were certain members that, you know, on an existing system if we could really be sure it was 50 percent and we knew 50 percent was okay, that would allow them to at least maintain the status quo and not necessarily have to rip out systems, start from scratch.

You know, you can't easily convert to a dry because of drainage and just lots and lots of issues involved.

And I think that's one of the reasons that the 50 percent kind of has hung around in a couple of different places. Not only in 13 D but I
think at one time in 25 they were discussing using 50 for existing as well, just because of those systems in the little bit further north we could have some protection with a good degree of certainty that as long as the concentration was right it would work.

And so I really think that is much of the reason for the 50 versus 48 as any.

THE CHAIR: Ms. Valentine, did you want to comment on this?

MS. VALENTINE: I did.

THE CHAIR: Please.

MS. VALENTINE: Victoria Valentine. I'm in agreement with the things that both Maurice and Ken have been saying but there's one piece I think that needs to be added and that's the concept of a risk analysis.

And I know that in the conversations it went me personally who was there, but what I was told from these conversations was there was a risk analysis discussed among the committee between the concept of do we allow the actual 50 percent for existing versus do we risk these ordinances that are currently in place and currently saving lives with
sprinkler systems being pulled.

And that was really where a lot of the heart of the discussion was in that I know that there are AHJ's from both Colorado and California who were part of these discussions and they truly believe that many of the ordinances that are in place for 13 D will be pulled out of legislation.

So then you start balancing how much are we risking for the 50 percent level that has not actually shown an incident at that level and actually having the sprinkler systems being installed and in place to save lives.

THE CHAIR: Thank you. Additional questions? Okay. With that we will close out the discussion on NFPA 13 D.

I think the discussion on 13 R may be fairly quick. Mr. Linder, you indicated that 13 R essentially refers back to what 13 did with respect to that.

So is it safe for me to say that the 13 R TIA and the 13 TIA would be similar at least in parallel in how they're going to implement this issue around antifreeze?
MR. LINDER: Yes. That is correct. The 13 R TIA refers specifically back to 13 for when you can use antifreeze, so they will be in sync and they will correlate, yes.

THE CHAIR: Okay. Since we're in the general topic of the sprinkler category, I guess -- and as we talk about 13 R referring back to the issue of a listed -- ultimately a listed solution, can you give me any expectation as to what that listed solution is to be?

Is that a different solution altogether or is that a different mix of an antifreeze solution? I mean, what's the expectations that would be coming out of that listing?

MR. LINDER: It's my understanding at least that the committees had two things really in mind. One is that we didn't really want to get into a mix of -- well, let me start off first -- that if we have a listed solution, the listed solution would work, it would work across the board, and it would not contribute to the fire.

So that was our main goal and that's the way that the committees have kind of gone. Our goal
is hopefully somebody will find something that uses non-combustible materials so that it won't contribute to the fire.

One thing we did not really want to do is to kind of get into a contest. And in our discussions with the labs, the labs really didn't want to get into the position.

We're dealing with combustible antifreezes and trying to iron out exactly under what conditions they work or don't work or it works with this sprinkler in this concentration, it won't work with another sprinkler at the same concentration, and go back and forth on trying to list specific sprinklers with specific antifreeze solutions.

We felt that would just be completely unmanageable and so we said, All right, you know, we need a solution that's compatible with the materials that are there that will not contribute to the fire, and put it back to the labs to come up with a listed solution that would meet that goal.

We're hopeful that in the next year or two or five that somebody will come up with a suitable solution that works.
I mean, there's been a number of other solutions over the years that people have tried. You know, there's a potassium lactate solution a number of years ago that looked promising for ESFR and then had some other issues.

I suspect some people are looking at brine solutions and, you know, saltwater to bring some of that down a little bit. That has its own issues.

But we did not want to restrict technology. We did not want to restrict somebody who thought they could come up with a better mousetrap and get it listed and approved go from doing so.

And if they can't, well then we'll have to deal with it and we'll have to move forward if no listed solutions come out.

It was our understanding that at least somebody was in the labs trying to get a solution listed.

Of course, that's all private discussions between manufacturers and laboratories and so I don't know what the specific solution was or whether it's six months away or a year away.
All we did know is that there was at least one manufacturer in the works trying to get an approval, and the committee felt that, you know, going forward we just didn't want to play games anymore.

Either it's listed and it works and it doesn't contribute to the fire, or you've got to go with a dry system or you've got to provide heat or you've got to do one of the other alternatives in order to keep the sprinkler safe from freezing and allow it to control the fire.

THE CHAIR: And, you know, the purpose -- And thank you for that explanation. Part of the purpose of my question was just trying to get straight in my head -- and I know it's going to go back to what you said -- what both of you said earlier in the comments.

But it seems like when I hear that, it's 13 R and 13 -- I'll probably use the wrong words, this is not my technical space, but it ends up being sort of a non-combustible solution, ultimately, versus in 13 D we're still -- we're trying to figure out the right mix of a combustible material
ultimately and trying to figure out the right mix to
to not have it contribute anything to the fire.

And I recognize the comment's different
about residential but it -- the approach just seems
widely enough different that it's worth raising the
question again as to why I would not search for that
same solution in a 13 D sort of application if that's
- you know, if that's where 13 and 13 R are.

MR. LINDER: Certainly 13 R and 13 are
installation standards for new systems. And so going
forward with a new system, you have lots of options.

You're designing your system from
scratch. You have choices you can make and economics
that you can deal with.

And certainly for new systems, I think it
was really clear to the committees that that was the
way we needed to go forward.

I think when you get to 13 D and NFPA 25,
which we haven't gotten to yet, we have existing
systems and we have lots of existing systems out
there that somebody has to decide how to deal with,
and most of those existing systems use a combustible
antifreeze.
So I think 13 D -- or 13 R and 13 are slightly different positions because they're installation standards for new systems going forward. And 13 D covers both, and then 25 covers the care and the maintenance for 13 R and 13 systems. And so those two standards are a little bit different in how they're trying to deal with the combustible issue and the economics and the things we're forcing building owners to do by prohibiting the mixtures.

I think everybody is trying to be as flexible as they possibly can while still be safe, and where you draw the line is a very delicate thing.

And, you know, whether it should have been 48 in all cases or 48 and 50, I think what you're trying -- what you're seeing is committees who are trying very, very hard to set that line where they think it ought to be, recognizing public safety, and that we want to put that fire out and yet still not putting undue burdens on building owners and people who have to now completely rip out systems and start from scratch or spend lots and lots of money for things that they really think are going to work to control the fire.
It may not be what I'd want to do if I was going from scratch today, but it's probably okay in a specific installation.

So I think that's also a part of where everybody is really trying to go and they've spent hours and hours battling back and forth, some on one side, some slightly on the other, as to exactly where that line ought to be drawn.

THE CHAIR: So I just want to follow that and, Mr. Pilette, I'll let you comment as well. I think after all the commentary I've at least grasped what everybody was talking about of the existing piece and the new piece.

But -- And I think, Mr. Linder, you were saying this in some of your comments just now, but -- I want to be more explicit about it, but in 13 D in a new system, to your point about R and 13 being installation standards for new systems, and 13 D in the new systems piece, I could still use a 48 percent mixture versus the tack that the other two standards took in saying it needs to be something that -- I mean, I have both in 13 D.

As a matter of fact, it uses it almost
like an exception where it says, Except when I do 48
percent the stuff's got to be listed for the
sprinkler systems.

And so, again, even from the new system
installation out, we take the existing piece out,
we've taken a little bit of a different tack and I --

MR. LINDER: I'll let really Maurice
speak to this issue but I think from an overall
perspective, the committee has gone out of its way,
13 D has, to make affordable systems in homes and
make it work, and I think that's part of the reason
that, you know, they're continuing to allow the 48.

We have tests. The test shows it was
good. The test showed it was good with residential
sprinklers. Where we started seeing issues at those
concentrations in this latest series of tests was
with spray sprinklers, was with much larger fire
sizes than we would get in a residential, and we
weren't using a 1.4 megawatt fire, we were using a
3 megawatt fire.

And so I this there are -- there are
differences between the larger commercial and
industrial facilities that 13 is trying to deal with.
I think when you get to 13 R you've got residential occupancies up to four stories in height. They also can be much bigger than a two-family dwelling. We can have four stories. We've got a lot more people involved.

And I think, you know, the committees have really kind of tied down and said, There we're just -- new stuff, this is the way to go.

But for other systems and especially in houses with attics and other places, there's just not ways to deal with it very well if you can't use antifreeze, whereas in most industrial and larger facilities, there's ways around the issue.

So I think that's part of the reason you're still seeing the 48 percent given the excellent test record in that first series of tests using residential sprinklers where we had no failures with 50 percent or less, but Maurice can talk about the discussions and the actual 13 D committee.

THE CHAIR: Mr. Pilette, any comment on that or --

MR. PILETTE: Well, I don't think there's -- Some of the things Ken and I are speaking to or
responding to are starting to be redundant because we can only go so far with it.

But the other thing to note is that 13 R and 13 have NFPA 25 as a fail-safe for testing and maintenance for the assurance. 13 D does not have that.

So 13 D is self-governing by itself for testing and maintenance, and it has a very lengthy section on -- About the only thing that you test and maintain in residential sprinklers is painted sprinklers and your antifreeze. There's nothing else.

And that's if the homeowner even knows he has a sprinkler system to begin with, number one. And, you know, you've got to ask that question because a lot of them probably don't even know they have it.

And number two, if they do have it and they're asked a question about antifreeze, you know, that draws a blank stare.

And then to start changing 50 percent or 48 percent for existing and -- verus the new, since 25 is not in play, the enforcement is not there.
And I tell you, in this state, a four-bedroom home with a 13 D system, to go in and check the validity of that antifreeze, it's a $4,000 hit.

And there isn't one homeowner that we know of -- and I've been tracking this in this state -- that will let the contractor in the door and start taking and unscrewing sprinkler heads out of their ceiling, their vaulted ceilings, their bedrooms and everywhere else to see if they have 48 percent or 50 percent. It just doesn't happen.

And your protected -- You know, people don't let people into their homes to all of a sudden dismantle their house to check for that antifreeze for a 2 percent variation. It just doesn't -- As soon as they hear the price, it doesn't -- Okay, goodbye.

You know, we see it in one- and two -- not one- and two-families bit townhouse condos where there's an association involved, where you end up having a property manager that will take those initiatives, but even then it's a 3, $4,000 hit to do that. It's very costly to do.
And then the other thing, if you look at it, whether or not there should be -- and there is a difference.

If you look at the fast response sprinklers, NFPA 25 requires a review of the fast response sprinklers in 13 R and 13 at a certain time interval.

The same fast response element goes into a 13 D system. There's no requirement to change that or have that residential sprinkler tested or looked at to see if it's still going to respond okay. We don't have those particular elements.

So, you know, the culture and what's being protected in 13 D and how they are tested and maintained is totally different than what you end up having in 13 R and 13 systems themselves where there are industries and entities out there that basically put 13 R and 13 and 25 together and then make it as a whole package.

13, 13 D, that doesn't happen, you know. And then with the cold weather states and how you design buildings and how you run piping, do it however it best fits to basically hide the piping.
It ends up in attics. It ends up on outside walls. And then that two percentage point of mixture that buys you an extra five degrees of extra protection, along with some insulation possibly, goes a long ways in the cold weather states in order to provide the suitable protection. And the risk the committee felt was justified in what they came up with.

THE CHAIR: Doctor Milke.

MR. MILKE: Jim Milke. Mr. Linder I guess. If I had been a betting person before this whole thing started, I might have expected that 13 R and 13 D requirements would be similar in that they're protecting very similar spaces, it's the same sprinkler, so you're going to get the same hazard potentially as a result of antifreeze that's there.

It comes out that 13 R and 13 D are being treated very differently. 13 R is equal to 13. I wonder, was there any discussion about similar hazard levels being treated very differently?

MR. LINDER: Certainly from the Correlating Committee perspective, I mean, I think they are different.
Yes, they're residential occupancies and they may have residential sprinklers. But 13 R also allows quick response standard spray sprinklers.

And standard spray sprinklers are one of the areas where we had problems in the second series of tests.

So there's a little bit more uncertainty in all of the 13 R where you might have used a quick response spray sprinkler as opposed to a residential sprinkler with a slightly different distribution pattern even though they both have fast response elements in them.

I think the other issue with 13 R is that it's not a single-family dwelling or a duplex. It's apartments. It's multi-story buildings.

We've seen it used for nursing homes and other facilities like that where you have people that can't necessarily get out quick.

And so we don't necessarily think that 13 R, even though it is residential occupancies, really equates quite the same as 13 D.

We do see them as a distinct and separate hazard and so we felt it was right to, maybe from a
correlation perspective, look at them a little bit differently.

THE CHAIR: Ms. Brodoff.

MS. BRODOFF: My question concerns the 13 R requirement for new construction, and I understand that for existing construction there has to be a certain balancing in terms of the fact that designing around the use of antifreeze is quite difficult and expensive.

But when you're starting from scratch, what is the rationale for the single-family residence for allowing the use of antifreeze as opposed to listed non-combustible solutions?

MR. LINDER: 13 R is essentially in accordance with 13 so we're requiring listed antifreeze solutions.

MS. BRODOFF: Maybe I misunderstood. I thought for 13 D systems, new systems, there was an escape hatch that allowed --

MR. LINDER: 13 R is new. I thought that's what you asked me. 13 D --

MS. BRODOFF: I'm talking about 13 D.

Why is that treated different than 13 R with respect
to new construction when you're not limited in that case by using design as a way of dealing with the cold weather climate?

Also, to Mr. Pilette's point about the culture of a single-family home, these are buildings that are not going to be serviced in the same way that other kinds of sprinklered facilities are, which might militate in favor of keeping antifreeze out altogether when you have the option of starting from scratch and doing it a different way.

MR. PILETTE: There are options which involves, you know -- There are dry systems out there now and for residential sprinklers that are very costly, so it's not the method of choice.

The designs of homes -- No one's building 2,000-square-foot homes. They're building 4,000-square-foot homes, and then -- with all very unique vaulted ceilings and attics and everything else that you can think of to get the piping through there to be able to sprinkler these homes and then -- in the cold weather environment.

So to add the additional insulation, to increase the joists of the framework, to provide the
additional protection, there's still the concerns from the contractors that there could be a particular problem.

And then the antifreeze is what's being introduced to provide the safeguard for liability issue on water damage issues from freezing.

That's a huge issue for the sprinkler contractor industry. That's a huge issue for me as a designer. My insurance premiums go up from omission and errors if I do too many residential sprinkler systems.

And I have to be very, very careful of how I treat those because it affects how I conduct my business, and all these factors come into play.

And when you deal with local water authorities, you know, with cross connections and the inspections and testing of these thing and the homeowners that are not aware and residential sprinklers are legislated and put into play to have to put these things in and have to deal with them, the cold weather climate in this state where you end up having in Cape Cod the seasonal homes that have residential sprinklers where these things are loaded
up with antifreeze even though there may not be anybody there, the fire services by the prevailing laws in this state won't allow those things to be shut down.

So, you know, the homeowner is going to fill them with antifreeze and they're going to put more than 50 percent antifreeze in there, only because a fire official or fire officials in this state won't allow a residential sprinkler system to be shut down regardless of what the issue.

Once it's in play, we have those statutes in this state that prevent that from happening. In other states we'd end up having some of those same statutes and legislative acts.

So the culture of single-family homes is -- unfortunately is totally viewed different and acted differently upon it.

THE CHAIR: Did you have a follow-up?

MS. BRODOFF: I guess that's kind of my point I guess I'm asking about is if the culture is such that these systems are not going to be inspected that they'll want to have lots of antifreeze in it if there's any question about freezing, why not, when
you have the opportunity of starting from scratch,
require that these systems be designed in such a way
that no antifreeze is necessary?

MR. PILETTE: Well, residential
sprinklers are $7 a square foot in this state. If
you want to have special construction that would add
it to 8 and $9, you know, I guess the freedom of
choice is there. But this is what occurs.

It's not -- This is not Scottsdale,
Arizona where you do residential sprinklers at 60
cents a square foot or $1.60 a square foot and other
parts of warm weather country.

You get into the cold weather areas
of northern Colorado, Minnesota, Canada,
Massachusetts, Maine, you know, you're talking about
a very high cost of residential sprinklers.

And to get the freeze protection, to get
the liquid in there, the 50 percent value or the 48
percent value in new or existing is on a consensus
basis, again, with -- the committees felt that this
was the appropriate way to go in order to salvage
sprinkler protection, to promote sprinkler protection
and encourage sprinkler protection to be introduced
in homes.

And I think the other item here is that the fire conditions that we've had nationally with the antifreeze issues have been in antifreeze systems with 13 R or 13 systems.

I don't recall seeing -- I could be mistaken. I don't see a single-family home having that issue occur -- Chris? -- you know, where there have been 13 R and 13 systems that have been evaluated where the fire issues have occurred.

I don't know of any single-family home that has had an ignition due to antifreeze in this country that's been reported. It's been reported for 13 R and in the 13 portions of buildings that have had the antifreeze.

THE CHAIR: Mr. Dubay, did you want to comment on that?

MR. DUBAY: No. You're correct in the fire data that we've received that we were aware of. My concern has always been it's a solution and the question that Ms. Brodoff was asking -- and I have the same question -- we've said in 13 D that the use of a combustible premixed solution is acceptable
which is different than what 13 R and 13 permit.

And that's the question in hand. When I look at it from the fire law statistics that we've seen is it's all been based upon the presence of a combustible solution, and there's an inconsistency between the three sprinkler standards. That was the point.

MR. PILETTE: I don't disagree that there's an inconsistency, but unfortunately the committee at this point has spoken on a couple of occasions.

And, boy, I tell you, the debate on these things have gone on and on, and this chair basically has gone and dismantled Task Groups, created new Task Groups with different viewpoints and different makeups that readdress these issues.

And I tell you, you know, no matter how many times it has occurred as a full committee or Task Group, it all comes down to this is what the committees wanted.

And the fire service members and the contractor members of the committee keep focusing on a very clear message. They're happy and content
based on the data that we have. 50 percent for existing, 48 percent for new.

THE CHAIR: Ms. Valentine, did you have a comment?

MS. VALENTINE: I have a real short comment. Victoria Valentine. But I think that the question that was being posed was strictly for new systems.

And when you think just about new systems, there's two issues. The first is cost. And the other alternatives beyond antifreeze are that much more expensive, so the primary issue is cost and if you want the systems in, that's the problem.

The second piece is that if there were a listed non-combustible antifreeze on the market today, that's the avenue the committee would have gone hands down and we wouldn't be in this question, but there isn't one that I can go today and get a listed non-combustible antifreeze solution.

THE CHAIR: Ms. Cronin.

MS. CRONIN: This is a question maybe for all three of the panel. What Ms. Valentine just said, it seems to -- if you get an out, then there's
no reason to try to develop these -- there's not as much motivation to create the non-combustible if there's sort of an out clause. So aren't we sort of doing the homeowners a disservice?

MR. PILETTE: I think the out clause --

The way the 13 D committee wrote it, you know, had several out clause compliance issues.

You first had to get the AHJ to even consider it, number one, and the AHJ has to see what the issues actually are, and the third is the limitation of it. It wouldn't be the entire house.

You had to defend the position of why you or the contractor wanted to use the antifreeze the way that that -- what the TIA is written.

It's not, you know, the AHJ is going to automatically approve it. The AHJ basically has to do some leg work and give us some thought whether or not he wants to allow it to begin with.

And he has to see the uniqueness of that house or portions of that house why antifreeze is even going to be used. It's not a blanket.

And then when it first came out, the first round of the discussion on the wording was AHJ
-- unless approved by the AHJ. And then the AHJ's finally got together and the contractors got together a little bit, tightened this thing up.

It went through three or four variations and then came up that it's not a blanket approval to use 48 percent or 50 percent on new or existing systems replacement.

You had -- you know, somebody's going -- you know, is going to look at it very seriously, the committee, with the language that's written now before going forward and making that final decision.

And then the cost factor, like Karen has indicated, is that there's a dry system out there but nobody's rushing to basically utilize that dry system for residential sprinklers, you know. Why? Because it's ten times the cost of something else.

THE CHAIR: Ms. Valentine, did you have a comment?

MS. VALENTINE: I did. I was just going to add that there's a couple of items in response to Ms. Cronin's question. One is liability.

And once the hype about antifreeze hit, however long ago it was that these conversations
really started, you got a lot of contractors who
don't want to touch it.

So you've got a lot of different avenues
that all want a solution. So I understand, yes,
there is an out.

On that same note, you know, the
standards get updated every three years, or at least
the sprinkler standards do.

So I think as soon as you see -- and my
understanding is that there's at least one, if not
two or three manufacturers attempting to get through
a listing process for non-combustible antifreeze.

So I think once you see something
available, you'll start to see some changes made
along the standards line as well. So I don't think
it is as locked in.

And then the last piece is the
authorities having jurisdiction. There's a lot of
those who because there's just the discussion and the
hype out there, that they don't want it, so -- and
both good and bad.

The AHJ's can get us one way or another
so it works sometimes in favor and against, but I
I think that those are some of the reasons why you're not going to really see this stagnate. You're not going to see people use the out for a long term.

THE CHAIR: Any additional questions?

With that I'll -- we'll move on to NFPA 25. And I guess, Mr. Koffel, you get to move to the table as this topic comes up.

And I think, along the same line that we have been doing, Mr. Koffel, if I could perhaps maybe ask you to introduce the TIA for NFPA 25 and summarize what it will do with respect to antifreeze and then we'll go to questions from there.

MR. KOFFEL: Thank you, Mr. Chair. My name is Bill Koffel, Koffel Associates, and I'm the chair of the Technical Committee responsible for NFPA 25.

Our work started with the conference call held by the affected chairs on March 26th at which Chris Dubay made a presentation with regard to concerns expressed by the Council over the existing TIA 's.

During that conference call I think we all came to a fairly good understanding of how to
proceed with new systems recognizing that 13 D might be somewhat different, but that there had to be an alternative or different approach offered for existing systems.

Based upon that, a special Task Group met on April 20th in this room. That Task Group consisted of a variety of interested parties including the respective chairs of the committees that have been processing these TIA's, sprinkler industry representatives from North America, contractors, and special interests.

The Task Group prepared an outline of issues that we felt needed to be addressed by the TIA for NFPA 25, recognizing that some of those would probably be considered with 13 D with respect to existing systems.

After that meeting a draft was prepared and circulated to the Technical Committee for their review and input. A conference call was held on May 8th at which we reviewed the draft.

As a result of the initial review and development of the draft, a Task Group further refined our substantiation.
Based upon the work in the substantiation, the committee held another conference call on May 21st because there were some things in the original draft that we did not think we could really support.

For example, as I walk through I'll talk about the exceptions to the risk assessment approach. The original draft had three exceptions; dwelling units, all light hazard occupancies, and ordinary hazard up to 25 feet.

Now, as we walk through draft and recognize -- and we recognize that NFPA 25 is in a different place than the three documents you've just discussed in that we are currently in our comment phase.

So I think at least for some of us, myself included, we perceive this TIA to probably be the solution for this coming heating season and that the committee, during the comment phase, will potentially further refine this document and, depending upon the outcome of the process, a new edition of NFPA 25 will be issued approximately one year from now that may include some further
refinements of the work that we've done to date.

So as we walk through the TIA, the first thing you will notice is that we provide a deadline for the use of systems that do not use listed antifreeze.

We felt that this was appropriate to let people know that at some point in time they were probably going to have to replace that existing antifreeze, and that date was chosen to be ten years, again, recognizing that that date is probably irrelevant with respect to this TIA in that there will be two or three editions of NFPA 25 that are likely to be processed between now and September of 2022.

We retained, as a basis, the 50 percent and 40 percent concentrations again based upon the testing that was performed.

I think in the previous discussion on 13 D we probably had some discussion as to those numbers, where they came from, did they include a safety factor, but I'll note that if I'm in the 50 percent or 40 percent range, for many occupancies a risk assessment is going to be required.
And the potential concerns that I heard from this group or some folks at the table about a safety factor would certainly I think be considered in that risk assessment.

Depending upon the occupancy being dealt with, the person performing the risk assessment might say, We need to look at a different concentration to address a safety factor as to whether we really believe the antifreeze will be at 50 percent or 40 percent.

The threshold that was chosen for the risk assessment was 30 percent propylene glycol and 38 percent glycerin. I think we've identified in our substantiation the rationale behind that.

It goes back to some testing that was done by Factory Mutual as well as looking at the MSDS and information provided by at least one manufacturer of antifreeze.

As I said, the original draft came up with three exceptions to the risk assessment. These were refined during our second conference call to say that there will only be two.

One is dwelling units where residential
or fast response sprinklers are installed, and that is similar to the discussion you just had with 13 D.

We also provided an exception for light hazard occupancies with ceiling heights not exceeding 20 feet and where quick response sprinklers are installed.

As the committee was developing those thresholds, there was some preliminary modeling done. That modeling is not shown in the substantiation for a variety of reasons.

We just did not feel that that modeling had been done to a level that we felt should be included in the substantiation.

You'll also note in A 53421 -- so this is an annex note -- that subject to the approval of the authority having jurisdiction, the committee believes that there may be some areas that are not normally occupied in which a higher concentration may be used.

I remember specifically one representative from Canada expressing concern about the concentration limits that we had and saying, Is this necessary in -- and the example he used and it's somewhat in this annex note -- a dust collector
outside a building or on the roof of the building.

Are we as concerned with the concentration of antifreeze in those applications?

And while we could not come up with any specific guidelines on that, we chose as an annex note to put that material -- to put that material in the annex and leave final decision on that up to the authority having jurisdiction.

And with that, I think that provides an outline and I'll respond to any questions.

THE CHAIR: I'll open it up for questions from members of the Council. Doctor Milke.

MR. MILKE: Mr. Koffel, I guess the question I have, you talked about a risk analysis being done. What does the committee envision this risk analysis to entail given the state of the art in our field?

MR. KOFFEL: Well, first off, we see -- you'll notice -- and I failed to mention this as I walked through -- that the risk analysis is a deterministic risk analysis.

In other words, the first assumption we have to make is that the fire does occur. We cannot
use the probability of a fire event as part of our risk analysis. We're going to assume the fire occurs.

We have tried in our substantiation to provide as much information as we currently have with regard to test data that exists, test reports that exist, and what we see as some of the variables that would need to be considered.

Personally I would say that the occupancy classification may be a significant issue, remembering that we're know outside the residential environment and, you know, we could be in any use for that matter.

So occupancy would be considered. Height. Fire scenario. We do believe that heat release rate is a key factor from the subsequent tests that were done by the Research Foundation.

So what is the likelihood that should a fire occur in this occupancy are we likely to see? Whatever we determine, is that a 3 megawatt fire or 2.5 megawatt fire?

I mean, we have data at two points on the curve right now. Not really sure what happens in the
interim, but expecting that the risk analysis that
would be approved by the authority having
jurisdiction would indicate that those higher
concentrations would be permitted.

THE CHAIR: Additional questions.

Mr. Bell.

MR. BELL: The question related to
actually two TIA's that passed ballot, the 1046 and
the 1068. So I didn't hear you comment on which one
of those or both of them you considered to be
applicable.

THE CHAIR: Ms. Cronin, did you have a
comment on the --

MS. CRONIN: Yes. I can speak
administratively to that. If this is the one I'm
thinking of, the one had passed before and then we
got new data.

And so in the ballot it said basically
that if you want to pass this 1068, the most recent
one, then the other one is moot. So 1068 is the TIA
we're talking about.

MR. BELL: Thank you so much. I have
another question while they're talking here. It
relates to -- I think you'd indicated there's preliminary modeling done to substantiate some of the criteria.

Can you expand on that? I mean, has further modeling been done or has it been confirmed that the reference to the allowance for no assessment be done in light hazard occupancies up to 20 feet? Is that considered still appropriate?

MR. KOFFEL: Bill Koffel in response to the question. There has been some further modeling done but it is not an activity of the committee.

It is an activity that I have undertaken. And we did in fact use DETACT. For those not familiar, DETACT is a model that will predict the response of a heat detector, also a sprinkler.

It is, in at least some instances, considered to be conservative, in particular if we're looking at maybe the typical residential environment, because it does not take into account or there's no influence in DETACT with regard to the buildup of a hot layer in a small compartment like I might have.

The modeling that we undertook was intended to be conservative. We looked at a variety
of sprinkler spacing including extended coverage
sidewall sprinklers.

We used an RTI of 50 which is the highest
RTI for a fast response sprinkler. We used an
activation temperature of 155 degrees Farenheit when
some of these could be at a lower temperature.

We evaluated ceiling heights of 8, 10, 15, and 20 feet. We looked at what I believe is
probably one of the most conservative fire scenarios
in a residential environment which is a bunkbed fire.

We then modified the bunkbed, the curve
for the bunkbed fire, because that is a very
challenging fire to sprinklers, to smoke alarms, to
anything.

And then we also looked at the standard
for T-squared fire, slow, medium, fast, and
ultrafast, again looking at 8, 10, 15 and 20-foot
ceilings.

That information has not been
disseminated yet to the committee. I have
distributed to some members of the committee, asked
for some comments, and I believe our expectation is
either we or some other member will undertake some
advance modeling, probably using FDS, as we go into our ROC meeting.

To answer your question directly, there would be some instances in which we might exceed a 3 megawatt heat release rate at activation of the sprinkler.

That would be in the bunkbed scenario and that would be in certain ceiling heights, in particular with an ultrafast fire and, in the most extreme spacing limitations, a fast fire.

So one of the things that the committee will need to answer is are those representative curves for a light hazard scenario or a residential scenario.

THE CHAIR: Ms. Cronin.

MS. CRONIN: I just wanted to clarify this DETACT modeling that you're describing. What would that substantiate? Which part of this TIA would that substantiate?

MR. KOFFEL: It was used to evaluate the exceptions to the risk analysis. And again, I'd have to offer that this is not a committee position that I would be offering but, rather, more of a personal
position.

I believe with a reasonable degree of certainty that we have substantiated that both slow and medium growth fires would not present an unacceptable condition in a light hazard occupancy with a ceiling height up to 20 feet.

THE CHAIR: Ms. Cronin.

MS. CRONIN: As a follow-up, with the data that we -- I actually wrote down -- When you were first introducing it you said it's not at the level to substantiate this at present.

So I guess I'm a little uncomfortable that you said that that's why it wasn't submitted, but yet that's what you're using as justification because it doesn't appear that the Fire Protection Research Foundation -- that it would support all possible scenarios for your Exception A.

MR. KOFFEL: Bill Koffel in response to the question. Again I want to emphasize that there are two distinct modeling activities that I'm referring to; the first one that was used to help to develop the substantiation which the committee chose not to include.
In looking at that modeling, I don't think it was as extensive as what we undertook in terms of some of the sprinkler spacings that were used, the heat release rates that were used, etcetera.

I believe the modeling that we did went further and it was really in anticipation of having some of these types of questions here at the hearing. That second modeling is purely a personal work product and not something that has been before the committee yet.

THE CHAIR: Just so I understand in all of this discussion that we've had, so now that I look at the 25 TIA, if I have a residential application with a 13 R system installed, I could go -- existing system -- I could go to 50 percent. Not 48 percent. So I'm looking like 13 D in that because I don't require a risk assessment in the case of a dwelling unit if it has residential sprinklers installed, and it says that I can go to 50 percent glycerin in the system.

Am I reading the TIA correctly? Is my logic through the 13 R system correct?
MR. KOFFEL: Within the dwelling unit, that would be a correct statement.

THE CHAIR: Ms. Cronin.

MS. CRONIN: I think you just said with ultrafast fires at certain ceiling heights there were some concerns, so I guess with the situation A and B that are exemptions from the risk assessment, could those particular situations present themselves?

MR. KOFFEL: Bill Koffel in response to the question. With a reasonable degree of engineering certainty I would not typically expect an ultrafast fire in a light hazard occupancy.

MS. CRONIN: So it sounds like maybe.

MR. KOFFEL: I cannot say that it will never happen, no.

THE CHAIR: Mr. Linder, I'm going to put you on the spot, not as your TCC hat but I understand you are a member of the 25 Committee. I would be interested in your comments on this TIA as a member of the committee.

MR. LINDER: In general I'm okay with what the committee did and the direction that they were going. As you will note, in my ballot I did
vote negative on technical merit.

And while I'm probably 90, 95 percent comfortable that in a light hazard occupancy at 20 feet we're going to be okay, I'm not to that level where I was willing to say, Put it in without a risk assessment, which wasn't a hundred percent comfortable that we could get that far.

It's kind of a personal judgment on my part, but that was the main reason for my negative vote on technical merit on this particular TIA.

THE CHAIR: While I have both of you, since you're members of the 25 Committee, can you -- I'll go back to my 50 percent question before.

What was the rationale of 25 for not including the safety factor in that 48 percent that -- Mr. Linder, you'd said it's shown up before from that.

What was 25's rationale for allowing -- I'll use the dwelling unit as the example since you don't have to have a hazard analysis there.

MR. LINDER: I mean, I think the difference between 48 and 50 is if everything is done right and it's all according to what we expect, there
really is no difference between 48 and 50 on the dwelling unit, and with the residential sprinklers the 50 percent worked. They didn't ignite and it wasn't -- Somewhere above 50 is where we got into problems.

So I think from my personal perspective when I go back and look at all of the existing systems out there and the expense to deal with it, I think we're asking for a hazard analysis to be done anywhere above the 30, 38 which we know is low enough that it's just not going to do anything based on the testing, up to the maximum of 50 percent that we're uncomfortable with, that there's just enough systems that could stay in at 50 percent that might not be adequate protection at 48, that given the fact you're doing a risk assessment I was comfortable with leaving the number at 50 percent for existing systems, at least certainly on the residential piece.

On the light hazard piece, you do have quick response sprinklers but you have spray sprinklers and I'm probably not really concerned with those small rooms with 8- to 10-foot ceilings.

I'm a little bit more concerned with the
higher rooms and some of the things that you might get in a light hazard occupancy from time to time.

But, again, it's a judgment call. I think the committee is trying to define the right line and, you know, for new systems we said, All right, we're going to go with the safety factor. You have a little bit of opportunity up front for stuff that's already in there, especially where the temperature requires a little bit more than 48 to be safe and not to freeze, that I was okay with going along with that especially given that we're requiring a risk analysis for someone to come in, make that decision.

And you have your building owner involved, you have your AHJ involved. You're not trying to hide anything.

Everybody is trying to look at all of the factors here, what we know from existing tests, and come to a decision as am I going to allow this to stay for ten years, which is the maximum it can stay given the current TIA, or are we going to make them immediately spend money and do something.

And I'm just -- you know, the
probability, especially if you're testing it, that somebody might not have the exact right concentration even on a premixed solution being right at 50 percent, I just don't get real excited between that little bit of difference in this particular case.

THE CHAIR: Just to follow up to that, just your last comment when you said that little bit of difference in this case, you're talking between 48 and 50.

I guess did the 25 Committee have any better or more information than 13 D did about whether or not 50 percent on a solution is truly 50 percent from those manufacturers?

I mean, Mr. Pilette indicated a couple of phone calls. Did 25 actually have anything in writing from any manufacturers, any information that would say if it's 50 percent, then our tolerance insists that it's not going to be 51 or 52 or --

MR. KOFFEL: Bill Koffel in response to the question. No, I don't think we had any information that was not available to any of the other committees.

I think in all instances we tried to
share information between all the respective committees that any of us came up with, so clearly one of the things we looked at was what the 13 D Committee had done.

Again, I would emphasize that these are existing systems. I would emphasize that if the TIA Log 1068 is not issued, we are going to be at 50 and 40, because that's what's currently out there in the existing TIA. So what is before us today is more restrictive than what the current language is.

THE CHAIR: Mr. Harrington.

MR. HARRINGTON: One of the negative ballots that was filed talked about the research not including K 5.6 sprinklers, concern that where they might be used in older buildings, light hazard occupancies, causing concerns and the feeling that more research was needed.

That was only a comment I guess that was made by one individual. But was there validity to that comment or do you people feel comfortable that that's not a real concern?

MR. KOFFEL: Bill Koffel responding for the committee. I would say based upon the modeling
that we have done with regard to anticipated heat release rates at sprinkler activation, if we are looking at 8- and 10-foot ceilings at virtually all spacings including extended coverage sidewall, we are under 3 megawatts when that first sprinkler operates with the exception of the ultrafast fire at the highest spacing we can get. So I do not see that as an issue, especially with 8- to 10-foot ceilings.

MR. HARRINGTON: Okay.

THE CHAIR: Ms. Cronin.

MS. CRONIN: You mentioned the ultrafast fire again and I wrote down certain ceilings heights are some concern. You said it probably wouldn't happen, but what about like a Christmas tree fire? Wouldn't that qualify as an ultrafast fire that is a pretty foreseeable scenario?

MR. KOFFEL: Bill Koffel. I do not have the height release curve for the Christmas tree. The Christmas tree would be a very fast-developing fire. Again, I would anticipate that -- I'd probably want to use some other modeling to really look at that fire scenario.

THE CHAIR: Mr. Bell.
MR. BELL: Your additional modeling that you've done, is it taking into consideration small rooms or large rooms or both or --

MR. KOFFEL: Bill Koffel in response to the question. Since we use DETACT at this time it does not. That's one of the reasons why we're looking at possibly doing FDS in the next phase of modeling so that we can look at the affected compartment.

Because we're not considering compartments, the time that we're predicting activation of the sprinkler should be a conservative prediction.

THE CHAIR: Mr. Koffel, when you introduced the TIA you talked about some of the language around the unoccupied areas and the dust collectors.

I guess one of the things that strikes me around that language is if -- It essentially is going to allow higher concentrations, so -- presumably high enough that we know those are combustible and can be ignited.

I mean, why would we -- why would the
committee even allow that in any area, whether it's unoccupied or not, if it was going to -- I mean, it could be in concentrations that could contribute to the fire if I understand correctly.

MR. KOFFEL: Bill Koffel in response to the question. Depending upon the heat release rate at the activation, yes, you might contribute to the fire.

But again, this was an attempt to address existing situations where there probably are not many options available to you short of total replacement of that sprinkler system with some other either different type of sprinkler system or another suppression system.

And it is an annex note and it is subject to the approval of the authority having jurisdiction.

THE CHAIR: Additional questions?

Ms. Brodoff.

MS. BRODOFF: Why is it -- It's an oddity to see an exception or purported exception written into an annex note. Why was that chosen?

It's an exemption -- Is it an exemption or is it not an exemption? Is it a suggestion to the
AHJ in case they want to exercise their independent
authority in some fashion? What is that?

MR. KOFFEL: Bill Koffel in response to
the question. As we know, it's possible in almost
any circumstance for the authority having
jurisdiction to allow an equivalency.

So this could be done without this
language if its code official chose to do so. I
think that the thought of the committee was we want
to focus this down to say these are very limited
situations that there should be consideration to
allowing an increase and, in fact, may even emphasize
that if you're dealing with occupied areas one should
not be looking at an alternative of increasing the
concentration.

THE CHAIR: Ms. Brodoff.

MS. BRODOFF: Is a loading dock normally
an unoccupied area?

MR. KOFFEL: Bill Koffel in response to
the question. That would -- There may be times,
there may be instances where it would be.

There may be times that I would not
consider a loading dock to be normally unoccupied.
If I'm dealing with maybe a UPS distribution facility, I would say that loading dock is probably occupied quite a bit because there are people constantly taking packages on and off those vehicles.

THE CHAIR: Ms. Cronin.

MS. CRONIN: So is it foreseeable that these unopened areas with the higher concentrations of antifreeze could be adjacent to occupied areas?

MR. KOFFEL: Bill Koffel. There's nothing in the language that would prohibit that, so yes.

MS. CRONIN: As a follow-up, would you consider that a danger and maybe an oversight by the committee?

MR. KOFFEL: Bill Koffel in response to the question. I don't know that I would consider it an oversight. I think the committee is looking at the authority having jurisdiction to take those factors into account.

If I have a firewall separating that space and it's adjacent, maybe it's not an issue. If there's no fire barrier separating the space, maybe it is. But we kind of left that up to the AHJ.
THE CHAIR: Additional questions.

Ms. Brodoff.

MS. BRODOFF: On a separate subject, Bill, you talked about modeling that you're planning to be doing in the future.

I guess my question is directed to the industry or whomever else might have knowledge of this. What additional live testing is being contemplated to get some better knowledge about how antifreeze operates, particularly in these commercial settings?

Perhaps I'm wrong, but my recollection is from the Series B tests that there was at least some implication there was more work to be done.

Does anyone have any ideas of what's being planned or should there be something planned?

Any comments?

MR. KOFFEL: At this point in time I'm not aware of any active research projects to expand on the work that's been done to date.

MR. LINDER: I'm not aware of any either. I think there's certainly additional questions that need to be answered.
Certainly there was not time to do anything or even get anything put together between the time the committees had to react and deal with this latest set and this meeting today.

You know, I'm hopeful it will be able to get funding and do some additional work in the future but, I mean, it's fire testing and stuff costs money and we've got to have funding to do it.

And I certainly hope that we'll continue the work and the effort and learn more as we go forward.

THE CHAIR: Ms. Brodoff.

MS. BRODOFF: Funding aside, would it be possible for your committee to review sort of a needs list or create a needs list and then let the question of funding sort itself out?

I mean, is that something you would consider appropriate for your committee to do at this point in terms of what you need going forward?

MR. LINDE: I think it's certainly something that the sprinkler committee needs to look at, and there is an automatic sprinkler task force that's part of the Research Foundation that has a
list of ongoing sprinkler topics requiring research.

The group met the other day and there's certainly -- there's lots of topics that we need to deal with, but certainly I think we will find that in the future we'll be looking at a list of areas where we don't quite have enough information where we think we may need to do some more testing.

And certainly there's lots of factors, whether it be the pressure or resulting drop sizes and distribution, size of the ignition source and the heat release rate that it's going to see.

I mean, there's lots and lots of things that we don't really a hundred percent understand I think in general with low pressures, and we have much, much less issues.

And certainly the higher pressures we have and the more fine drops we have, along with the stronger ignition source, the more likely we are to have an ignition.

So there's a lot of things we kind of know and are intuitive and there's a lot more that eventually hopefully we'll know.

MR. KOFFEL: Just to add to that, I would
concur and it's very possible at our ROC meeting in September that the 25 Committee might even be able to identify some things in particular as we look at additional modeling of areas that might be of particular interest.

THE CHAIR: Any further questions?

Ms. Brodoff.

MS. BRODOFF: I'm not a technical person so I may get this wrong, but in the last Council decision there's a statement that the report, the latest report of the Series B testing, suggested that the results of the program indicated that limitations should be considered on the use of 50 percent glycerin or 40 percent propylene glycol antifreeze in non-residential sprinkler systems.

Is that what the hazard analysis is trying to address, that in some cases it may be okay but in others it may not be?

MR. KOFFEL: Bill Koffel in response to the question. I would say yes, we have done that in that if you are going to exceed the 38 percent or 30 percent, that in most instances the hazard assessment or risk analysis would need to be performed.
MS. BRODOFF: So that was in direct -- at least in part a direct response to the concerns raised by the board in that respect.

MR. KOFFEL: I believe so, yes.

THE CHAIR: Any further questions? With that, gentlemen, I'll bring this hearing to a close. I want to thank Mr. Koffel certainly on behalf -- for the 25 Committee and Mr. Linder for allowing us to put you on the spot as a member of the committee as well. We greatly appreciate the input.

I will bring this hearing to a close and again note that ultimately the decision of the Council will be issued as a written decision by Ms. Cronin.

No member of the Council or NFPA staff will convey that decision or any part of that decision outside of what is written and sent out by her. So with that we will close.

While I'm on the record, I just want to ask -- We have a series of other hearings and I just want to make sure before I go off the record, is there anyone here to speak to the NFPA 499 or NFPA 1582 issues?
My notes all say that people are not attending and I just wanted to make sure, as I go off the record, that that's the case.

So seeing none, we will officially close the hearings, go off the record.

(Whereupon at 3:00 p.m. the hearings concluded.)
CERTIFICATE

I hereby certify that the foregoing 96 pages contain a full, true and correct transcription of all my stenographic notes to the best of my ability taken in the above-captioned matter held at the offices of NFPA on Tuesday, August 6, 2012, commencing at 1 p.m.

Linda J. Modano, Registered Professional Reporter

My commission expires May 11, 2018