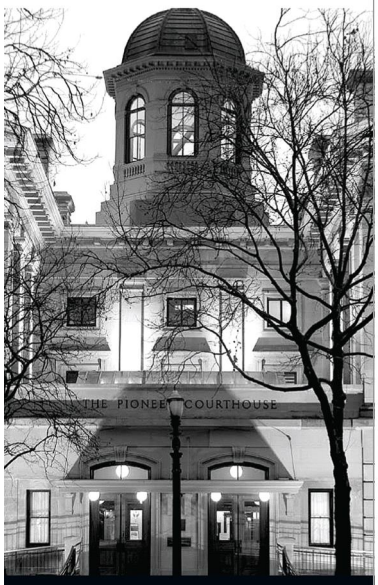
Powerful
LITIGATION SUPPORT

COURT REPORTING
LEGAL VIDEOGRAPHY
VIDEOCONFERENCING
TRIAL PRESENTATION
MOCK JURY SERVICES
LEGAL TRANSCRIPTION
COPYING AND SCANNING
LANGUAGE INTERPRETERS



NAEGELI
DEPOSITION & TRIAL

CELEBRATING 40 YEARS IN BUSINESS

(800) 528-3335
NAEGELIUSA.COM

AUDIO TRANSCRIPTION OF
2023 NFPA TECHNICAL MEETING
THURSDAY, JUNE 22, 2023

MANDALAY BAY RESORT
3950 LAS VEGAS BOULEVARD SOUTH
LAS VEGAS, NEVADA 89119

APPEARANCES

JIM QUITER

DAWN MICHELE BELLIS

SUZANNE GALLAGHER

MICHAEL KUHL

JASON D'ANTONA

WAYNE GUYER

AMY MURDOCH

STEVEN WOLIN

DR. RODGER REISWIG

JACK POOLE

STEPHEN M. LEYTON

KYLE CHISM

BOB CAPUTO

DARREN HOPKINS

JOSHUA BRACKETT

TOM LONG

KEVIN HALL

DAVE DAGENAIS

TERRY VICTOR

JANNA SERAFIN

MARCELO HIRSCHLER

NEIL HARA

ERIC SMITH

APPEARANCES CONTINUED

CHRISTOPHER WAGNER
ALEX SMITH
DAVE TABAR
ROBERT UPSON
SCOTT BAILEY
ARTHUR PARKER
SCOTT DILLON
ALAN GETTLEMAN
MATTHEW STEPP
RICHARD LONG
MARC BLOC
TIM SCHENKER
MICHAEL JOHNSTON
KIMBERLY GRUNER
WILLIAM (BILL) KOFFEL
RONALD LAURENCE
BRYAN HOLLAND
ED HAWTHORNE
BILL O'DONNELL
MIKE STONE
KEVIN CHEONG
THOMAS DOMITROVICH
KEITH BRADLEY

APPEARANCES CONTINUED

CHRISTINA FRANCIS

JIM PETERKIN

JEFFREY FOISEL

CHRIS NEAL

MICHAEL CROWLEY

JIM BELL

RICHARD GUSTAFSON

JOSH LAMBERT

WAYNE (CHIP) CARSON

NICK DAWE

KIP LAMOTTE

KEN TYREE

SAM FRANCIS

DWAYNE GARRIS

TOM MCHONE

BRIAN MCGRAW

MELINDA AMMERMAN

KEVIN KELLY

PETER WILLSE

NATHAN WITTASEK

GEORGE BISH

STEVE LIPSTER

AUDIO TRANSCRIPTION OF

2023 NFPA TECHNICAL MEETING

THURSDAY, JUNE 22, 2023

MS. BELLIS: Welcome, ladies and gentlemen, to the 2023 NFPA Technical Meeting in Las Vegas, Nevada. As we return to meet together in person, your safety is of paramount importance.

Please take a moment to familiarize yourself with the room, noting exits in the unlikely event of a need to evacuate. While you are here we want you to be safe so please pay close attention to the following safety procedures.

Allow me to remind you, being a safety organization, NFPA is always concerned for your safety. Please look around for the marked emergency exits. Keep in mind that the nearest emergency exit may be behind you.

In the event of any emergency at Mandalay Bay call the MBH Security Dispatch. From house phones dial 77-911 or from a cell phone dial 702-632-7911.

If there is an emergency requiring evacuation an announcement will be made over the alarm system and security officers will provide

further directions.

When the alarm system is activated horns will sound, flashers will be visible throughout the area, and a series of emergency announcements will be played over the public address system.

Once an alarm has been initiated, members of Mandalay Bay's trained security and engineering staff immediately respond to the location of the alarm, determine the source, assess the situation, and report back to the Fire Command Center with their evaluation.

Evacuation is not automatic and is only ordered when warranted. If evacuation is ordered, quietly leave the room using the exit nearest you and follow posted route maps, NFPA staff, and Mandalay Bay staff.

If you are a person with disabilities who has not already made arrangements with NFPA staff for emergency evacuation, please do so at the registration desk at this time. More details regarding evacuation may be found on the mobile app of the technical meeting.

During the technical meeting the use of recording devices of any type is prohibited. The regulations governing the development of NFPA

standards or the regs primarily govern the NFPA standards development process, including processing of certified amending motions at technical meetings. The complete regs are available on NFPA's website at www.nfpa.org/regs for your convenience.

As a participant in the process and attendee, you should familiarize yourself with the guide for the conduct of participants in the NFPA standards development process prior to the start of consideration of today's certified amending motions.

Additionally of importance to be familiar with are the NFPA convention rules. The convention rules establish the process for today's session. Both documents are available on NFPA's website at www.nfpa.org/regs.

The certified amending motions of today's sessions will be taken in the published order of the 2023 annual technical meeting agenda. To access and view both the final report of the Motions Committee and agenda in its entirety, please visit www.nfpa.org/2023techsession.

The report of the Motions Committee and agenda combines all certified amending motions from the fall 2022 and annual 2023 revision cycles identifying all motions eligible for consideration

during the technical meeting.

Only certified amending motions and subsequent allowable follow-up motions as determined by the presiding officer will be entertained at this meeting.

An authorized person must sign in as per the convention rules to indicate presence and intention to pursue each certified amending motion. Please note by obtaining your credentials at registration and entering the room you have electronically signed in for this purpose.

All certified amending motions will review by the Motions Committee for determination of certification following submission of notices of intent to make a motion.

For the NFPA Technical Meeting a quorum is to be established prior to conducting business and consideration of certified amending motions. Should the quorum be lost during proceedings the session will terminate without further action by the membership.

Any certified amending motions not acted upon prior to the loss of quorum shall be forwarded directly to the Standards Council without recommendation of this meeting for action related to

issuance in accordance with Section 4.7 of the regs.

Any motions to amend or return that pass prior to loss of quorum shall be processed and forwarded to the Standards Council in accordance with regs sections 4.5.3, 4.6, and 4.7.

Any appeals based upon the NFPA Technical Meeting actions must be filed with the Standards Council within 20 days following adjournment, specifically July 12th this year.

Per Section 1.6.2 of the regs, an appeal for any amendment passed at this meeting which fails committee ballot shall be filed no later than five days after publication of the amendment ballot results.

Typically results of amendment ballots are published within 20 days of the technical meeting's adjournment.

The votes cast at the technical meeting, in conjunction with debate prior to voting, are an integral and important contribution to NFPA's consensus process. Through motions, debate, and voting you, our NFPA membership, make recommendations to the Standards Council.

The majority vote results today are for the sole purpose of providing recommendations to the

Standards Council prior to the issuance of standards. The Standards Council's decisions on issuance is based upon the entire record, including the discussion and resulting votes at the technical meeting.

Voting at NFPA technical meetings is a privilege granted to voting members of the association who are registered for this event and physically present.

Voting members are identified as such on registration badges, may utilize a voting device, and should be seated in the areas of the room designated for voting members.

Presiding officers, regardless of membership status, do not vote on matters before the membership. In the event of a tie vote the issue fails.

In a continuing effort to provide the most convenient and accurate methodology for voting, NFPA will continue with voting as we did during the electronic technical meetings of 2020 and 2021 as well as live in Boston in 2022.

Member voting can be completed using your personal Android or IOS smart device by simply downloading the NFPA tech session voting app

available at www.nfpa.org/2023techsession.

Additionally there are signs available with QR codes in the room and outside the room which will take you directly to the app for downloading.

For those who have yet to download the voting app please take note that this must be done prior to you submitting your votes and will require you to verify your successful download by answering a test question.

This process only takes a matter of minutes and assistance is available should you experience any difficulties.

For anyone who is a member with voting rights at today's session who does not have a smart phone device, NFPA will provide you with a voting device at the back table upon request.

These members will also be required to log into the app with an assigned key code and complete the test question prior to submission of the first vote.

Once the session begins today a presiding officer will recognize each authorized maker of motion or designee in the published agenda order. At that time, to proceed the maker must approach the microphone to present the motion.

During the technical meeting statements for the record, statements for which no certified amending motions or allowable follow-up motion is available shall not be permitted.

Following presentation of a certified amending motion by the maker or designee, the chair of the responsible technical committee and/or correlating committee shall report.

The floor is then open for discussion. Anyone in attendance has the privilege of participating, speaking either in support of or opposition to the motion.

Please preface all remarks with your name, company or organizational affiliation, and whether you are speaking in favor of or against the presented motion. Again identify yourself by name, company or organizational affiliation, and your position each time you address the membership.

Should you forget to do so, the presiding officer will remind you of this as the information assists the stenographer of the session.

Green signs indicate microphones for supporters of the motion. Red signs indicate microphones for opponents of the motion.

Per the regulations governing NFPA

sections, a section may present position on a motion at the technical meeting.

A position of a section does not necessarily reflect the views of all section members but minimally must have been established by a majority of members with 25 or more votes cast.

The position of a section is awarded no special status in the NFPA standards development process and may be weighed and assessed as you, the membership, deem appropriate.

To officially conduct this meeting the presiding officer will allow each speaker three minutes to speak. However the presiding officer may limit speaking time afforded in the event that this becomes necessary.

With one minute remaining a bell will sound and a timer will appear on the center screen. Once your time has ended please conclude your remarks.

Following close of debate the membership will be asked to vote on the motion. Once the vote is final the presiding officer will announce the result of the membership's vote.

If the motion is successful the presiding officer shall entertain follow-up motions if any.

The maker of a follow-up motion shall explain why the motion is in order before the presiding officer makes a determination as to whether the motion is a proper follow-up motion. If determined proper, debate on the floor follows the same order as certified amending motions.

As presentations and debate of each motion continues the screen will display the following from left to right. Screen one will show the recommended text if the motion passes or, should the motion's text be lengthy, refer the audience to the electronic agenda with specific page noted.

Screen two will show the recommended text of the Technical Committee and if the motion fails. The center screen will show action on the floor that the IMAD camera captures during debate.

Following close of a motion's debate and membership vote, the center screen will display the total number of votes in support and in opposition to the motion.

To the right of the center screen, screen one and screen two information will be visible for ease of seeing from the right half of the room.

Together we will make 2023 NFPA Technical Meeting a success. We thank you in advance for your

participation and welcome any comments you may share and suggested improvements for future events.

At this time I invite you to please take your seats. The 2023 NFPA Technical Meeting will begin shortly. Your efforts to assist us in starting timely are graciously appreciated.

MR. QUITER: Please take your seats. Good morning and welcome, ladies and gentlemen, to the 2023 NFPA Technical Meeting, starting with the Committee Service Awards.

I am Jim Quiter. And it is my distinct pleasure to serve as your Standards Council Chair and to take part in this year's meeting.

Before we go any further, I would like to introduce in the center of the stage Dawn Michele Bellis, who serves as Secretary of the Standards Council. And to her left, Suzanne Gallagher, NFPA Council.

As you know, the NFPA standards development process is a consensus process that encourages participation of all facets of industry, trades, government, enforcers, and anyone interested in improving safety and reducing fire loss.

Through this process countless volunteers are developed and updated, revised -- excuse me. I

missed a line. Countless volunteers share their expertise and time to ensure that NFPA standards are developed and updated and revised to address safety concerns and technologies.

It is my pleasure to recognize some outstanding NFPA participants who have gone above and beyond to further NFPA's mission. Please join me in thanking each award recipient and recognizing the stellar contributions each has made to NFPA standards.

So we're going to talk first about Committee Service Awards. The Committee Service Award is given to a technical committee member for continuous and exemplary service on one or more committees over a substantial period of time.

And in recognition and appreciation of distinguished service to the NFPA in the development of NFPA codes and standards, I am pleased to present this award today to the following worthy individuals. Our first recipient of the Committee Service Award is Dr. Robert Elbert.

MS. BELLIS: Dr. Robert Elbert of the US Department of the Navy, NAVSEA in Portsmouth, New Hampshire, serves on the Technical Committee on Gas Hazards. He's been on this committee from 1996 to

the present.

MR. QUITER: Apparently Dr. Elbert is not here. But we want to thank him for his many years of service to NFPA and the standards development process. Our next award winner is here. Let's welcome Committee Service Award winner Michael Kuhl. Michael, please join me on the stage.

MS. BELLIS: Michael Kuhl of Heritage Fire and Safety Limited in Aberdeen, United Kingdom serves on the Technical Committee on Cultural Resources. He's been on the committee from 2006 to the present. And he's served as Secretary from 2010 until 2023.

MR. QUITER: Thank you, Michael, for your many years of service to NFPA and the standards development process. The next Committee Service Award goes to Jason D'Antona. Jason, please join me on the stage.

MS. BELLIS: Jason D'Antona of Partners Healthcare in Somerville, Massachusetts serves on the Correlating Committee on Healthcare Facilities. He started in 2014 and continues to serve on this committee.

He also serves on the Associated Technical Committee on Electrical Systems, starting in 2005 to

the present. And currently he's serving as chair since 2014. He also served on the Technical Committee on Emergency Power Supplies from 2013 to 2019.

MR. QUITER: Thank you, Jason, for your many years of service to NFPA and the standards development process. The next recipient of the NFPA Committee Service Award is Wayne Guyer. Wayne, please join me on the stage.

MS. BELLIS: Wayne Guyer, previously of the Steel Tank Institute in Lake Zurich, Illinois served on the Technical Committees on Flammable and Combustible Liquids, Tank Storage, and Piping Systems from 1986 until 2023; Tank Leakage and Repair Safeguards from 1986 through 2023 as well.

MR. QUITER: Thank you, Wayne, for your years of service to NFPA and the standards development process. Next we have Amy Murdoch. Amy, please join me onstage.

MS. BELLIS: Amy Murdoch of Code Consultants Incorporated in St. Louis, Missouri serves on the Correlating Committees of Building Code from 2014 to present as well as Safety to Life 2014 to present.

She also served on the Associated

Technical Committees on Mercantile and Business Occupancies from 2009 through today. And she's been chair since 2014. Her tenure is ending as chair so we'd like to thank her for that as well.

MR. QUITER: Thank you, Amy, for your years of service to NFPA. Our next recipient is Steve Wolin. Steve, if you are here, please join me on the stage.

MS. BELLIS: Steven Wolin of Reliable Automatic Sprinkler Company, Incorporated in Liberty, South Carolina serves on the Flammable and Combustible Liquids Technical Committees on Fundamentals of Flammable and Combustible Liquids from 2021 to the present; Storage and Warehousing of Containers and Portable Tanks, 2018 to the present.

He also serves on Technical Committees Automatic Sprinklers; Sprinkler System Discharge Criteria, 2014 to the present; Hazard and Risk of Contents and Furnishings, 2004 to the present, being chair since 2013 and tenuring off that committee as chair; and Smoke Management Systems from 2001 through 2014.

MR. QUITER: Thank you, Steve, for your years of service to NFPA and the standards development process. We have several other

Committee Service Award recipients who are not here with us today. We would like to acknowledge and thank them for their service despite their absence.

MS. BELLIS: I'm going to give you all a warning. You're going to be hearing my voice for a little bit. I've got a lot to read.

So the remaining NFPA Technical Committee members receiving awards today are Richard G. Freedenberg, State of North Carolina Department of Agriculture and Consumer Services, Raleigh, North Carolina.

Richard serves on the Technical Committees on Explosion Protection Systems from 2016 to present; Automotive and Marine Service Stations, 2016 to present; Liquified Petroleum Gases, 1999 to the present; and LP Gases at Utility Gas Plants, 1999 to the present.

Our next award winner was Steven T. Gentry of Worthington Industries. Most recently he is retired in May of 2023. Steven served on the Technical Committee on Liquified Petroleum Gases from 2000 through 2023.

Thomas R. Janacek, Ceco Door Products -- excuse me -- retired in August of 2022 from Hampshire, Illinois. Thomas served on the Building

Code and Safety to Life Technical Committees on Educational and Daycare Occupancies from 2013 through 2022 and Fire Protection Features, 2002 until 2022.

He also served on the Technical Committees on Premises Security from 2006 to 2013 and Fire Doors and Windows from 1986 until 2022.

Frank Mortimer is an outgoing chair. He's with American Property Casualty Insurance Association, EMC Insurance Company. He recently retired in February of 2023. He hails from Indianola, Iowa.

Frank served on the Technical Committees on National Fuel Gas Code from 2013 through 2023. And he was chair from 2017 until currently. He is tenuring off as chair of that committee. He also serves on Liquified Petroleum Gases from 1997 to 2023 and was chair from 2004 through 2013.

Kevin Ritz, another outgoing chair, representing Baltimore Gas and Electric Company in Baltimore, Maryland. Kevin serves on the Technical Committees on Liquified Natural Gas, 2004 to present; LP Gases at Utility Gas Plants from 2002 to present; and he also served as chair from 2012 to present.

Samuel A. Rodgers of Honeywell Incorporated, Colonial Heights, Virginia, serves on the Combustible Dust Technical Committees on Handling and Conveying of Dust, Vapors, and Gases, 2000 to present; Combustible Metals and Metal Dust, 2011 to present; Fundamentals of Combustible Dust, 2011 to present.

He also serves on the Technical Committees on Electrical Equipment in Chemical Atmospheres, 1996 to the present; and Explosion Protection Systems, 1996 to the present, where he was chair from 2003 until 2013.

Michael P. Sheerin, another outgoing chair, is with TLC Engineering for Architecture in Orlando, Florida. Michael serves on the Correlating Committee on Healthcare Facilities. He's been on that committee since 2014.

And the Associated Technical Committee on Mechanical Systems, 2007 to present. He became chair in 2014 and is ending his tenure.

James P. Simpson of Electrical Training Alliance, Palisade, Minnesota, is another chair who is ending his tenure as chair. He's ending that tenure on Premises Security where he served from 2006 to the present and chair since 2014.

He also is on the Technical Committees on Healthcare Facilities; Healthcare Emergency Management and Security, 2008 to present; and Signaling Systems Emergency Communication Systems, 2008 to present.

James R. Thornton of Newport News Shipbuilding in Hampton, Virginia serves on the Technical Committee on Gas Hazards. He began serving in 2002, continues to serve, and has been chair since 2011. His tenure as chair is ending as well.

Michael Tierney of Kellen Company, Niantic, Connecticut, serves on the Technical Committees on Premises Security, 2001 to present; Building Code and Safety to Life Means of Egress, 2000 to present; Fire Doors and Windows, 2000 to present.

And he also served on the Building Code and Safety to Life Technical Committee on Detention and Correctional Facilities from 2000 to 2004. I know you all are glad I'm done reading. Thanks for being patient.

MR. QUITER: On behalf of the NFPA Standards Council I would again like to say thank you to all of these individuals. Thank you for that

sincere appreciation. This concludes the awards ceremony.

And with that I now turn over the meeting to Rodger Reiswig, Chair of the Motions Committee, who will proceed with the 2023 Association Technical Meeting. Rodger?

DR. REISWIG: Thank you, Jim. As the 2023 Chair of the Motions Committee of the NFPA Standards Council it is my distinct honor and pleasure to welcome you to this year's event.

As you know, certified amending motions will be presented, debated, and voted upon today for standards which were processed through the fall of 2022 and the annual 2023 revision cycles respectively.

The certified amending motions, or CAMs, were acted upon by the Motions Committee at the conclusion of each NITMAM, notice of intent to make a motion, submission period to determine certification in accordance with Table 1 of the regulations governing the development of NFPA standards.

The results of the committee's review and decisions were publicly posted in the fall and annual reports for the Motions Committee.

The order of the presentations today during today's sessions are detailed in the agenda. All are available for review at nfpa.org/2023techsession.

In closing I want to remind that each of you is an essential element within the NFPA standards development process.

For that I extend my personal thanks for your time, dedication, and interest as well as that of the entire standards council. Now without further delay I introduce you to the first presiding officer of the day, Mr. Jack Poole.

MR. POOLE: Thank you, Rodger.

As introduced, I'm Jack Poole. And I'm honored to be serving as the presiding officer here this morning. I declare that a quorum is present for the purpose of conducting business.

Allow me to remind you, being a safety organization, NFPA is always concerned about your safety. Please look around for the marked exits. Keep in mind that the nearest emergency exit may be behind you.

In the event of an emergency here at the Mandalay Bay call the Mandalay Bay Security Dispatch. From house phones you dial 77-911. Or

from your cell phone you can dial 702-632-7911.

If there is an emergency requiring evacuation an announcement will be made over the alarm system and security officers will provide further direction.

When the fire alarm system is activated loud speakers will sound, strobes will be visible throughout the area, and a series of emergency announcements will be played over the voice evacuation system.

Once the alarm has been initiated members of the Mandalay Bay trained security and engineering staff will immediately respond to the location of the alarm, determine the source, assess the situation, and report back to the Fire Command Center with their evaluation.

Evacuation is not automatic and is only operationalized when warranted and is irrefutable. If evacuation is ordered quietly leave the room using the nearest exit you -- near you. And follow the posted routes, NFPA staff, and Mandalay Bay staff. During the technical meeting the use of recording devices is prohibited.

The votes cast at the technical meeting in conjunction with the debate are an integral and

important contribution to NFPA's consensus process. Through motions, debate, and voting you, our NFPA membership, make recommendations to the Standards Council.

The majority vote rule results today are for the sole purpose of providing recommendations to the Standards Council prior to issuance of the standard.

Any appeal based upon technical meeting actions must be filed to the Standards Council by July 12th. That is 20 days following the adjournment of the meeting.

Any appeal for any amendment passed at the meeting which fails technical committee or correlation committee ballot shall be filed no later than five days after publication of the technical committee ballot results in accordance with Section 1.6.2B of the regulations.

Typically results of amended ballots are published within 20 days of the technical meeting adjournment.

The Standards Council discussion on issuant is based on the entire record before it, including the pre-technical meeting position statements submitted, debate, and resulting votes at

the technical meeting.

The Standards Council will meet on August 23, 24, and 25 of 2023 to hear appeals and make final determinations on issuing of the standards.

Today's session will include certified amending motions, or CAMs, on NFPA 14, NFPA 45, NFPA 58, NFPA 140, NFPA 260, NFPA 286, NFPA 505, NFPA 4, NFPA 30A, NFPA 99, NFPA 101, and NFPA 5000 in order as posted in the agenda, as Rodger mentioned, on www.nfpa.org/2023techsession.

Before we move on to the certified amended motions for consideration and debate today let's be certain that everyone's voting application is operationalized and working.

For anyone who is a member with voting rights at today's session who has yet to download the application for voting, please do so at this time. Staff is in the rear of the room to assist you if needed.

Any registered eligible voting member who does not have a smart phone device may request the use of a limited number of voting devices at the back of the table.

These members will be required to log on to the app with an assigned key code and complete

the test question prior to submission for the first vote.

To verify that the app is working please scroll down and select call to question. Everybody doing that? Everybody with me? I will ask that you vote choosing either yes or no after I announce that voting is open.

Voting is now open. Please cast your vote yes or no. Voting will close in five seconds. Voting is now closed and irrefutable. You will see the results now appear, as will voting results appear the session in the center screen.

Now that you're comfortable with the process and you're devoting -- and your voting device has been operationalized let's begin.

The first standard on our agenda is NFPA 14, Standard for the Installation of Standpipe and Hose Systems. Mr. Steve Leyton will present the chair report of NFPA 14 to the assembly.

MR. LEYTON: Thank you, Mr. Poole. Ladies and gentlemen, the report of the Technical Committee on Standpipes for the Standard for the Installation of Standpipe and Hose Systems is presented as found in the first draft report and the second draft report for the fall 2022 revision cycle.

The Technical Committee on Standpipes have published a first draft report and a second draft report consisting of revisions to the Standard for the Installation of Standpipe and Hose Systems.

The revisions were submitted by letter ballot of the responsible committee. The report and ballot results can be found at the next addition tab of the document information page for the Standard for the Installation of Standpipe and Hose Systems at www.nfpa.org/14next -- 14NE-X-T.

With that reported, I move for the Standards Council issuance of the committee's report on the Standard for the Installation of Standpipe and Hose Systems.

MR. POOLE: Thank you, Mr. Leyton.

Now let's proceed to discussion on Certified Amended Motion 14-17. Microphone three?

MR. CHISM: Good morning. My name is Kyle Chism. And I'm with the Cla-Val Company. I'm addressing CAM 14-17. I support the motion to remove Second Revision No. 28 regarding automatic breach control valves.

MR. POOLE: Thank you. There's a motion on the floor to reject Section Revision No. 28. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: We have a second. Kyle, go ahead and proceed, please.

MR. CHISM: Okay. The main objective of an automatic breach control valve, or an ABC valve, is to protect upstream floors from losing water supply should there be a downstream breach of the system.

Should there be a rupture in the standpipe, water could be drained from fire reserve tanks. And firefighting activities will be hindered until the correct manual isolation valve is identified.

An automatic control valve, on the other hand, would start to respond before trained personnel would be onsite. ABC valves also lessen the risk of injury to trained personnel trying to get through fire and debris to identify correct isolation valves.

ABC valves have a main valve and pressure differential pilot on the trim package. The pressure differential pilot contains two ports -- one for the inlet pressure and one for the outlet pressure.

There is a field-adjustable screw on the

pilot that is then adjusted to make the pilot trip point match the desired pressure differential of the main valve.

Once the trip point of the pilot is reached the pilot directs water to the main valve to close it. It can take anywhere from 20 to 40 seconds to fully close the main valve.

It is important to note the ABC valve will start to close but will also start to reopen once the valve pressure differential is satisfactory.

The pressure differential pilot can be easily tested to ensure it is set properly. We offer quick-connect fittings for port one and two of the differential pilot.

During the test, port one is isolated to atmosphere and port two would be charged to a predetermined systems setting using a test gauge.

Testing is complete once set pressure is reached and the pilot shifts. We can also provide a locking cap to prevent the pilot setting from being tampered with.

Cla-Val has a lot of valve data due to our listings -- due to the listings of our deluge valve, pressure reducing, and pressure relief valves that all use the same main valve as our ABC valve.

There has been calculations performed on each one of our listed valves that shows the pressure loss through our valves at different flows.

The ABC valve is a normally open valve so the pressure differential between is just the difference between the inlet and outlet board and will be directly tied to the flow passing through the valve.

UL and FM will not open a new category because of the current verbiage within NFPA 13 and 14 restricting the use of ABC valves. One of the main concerns with the ABC valve is premature closing if not set properly. The same concern was managed with a quarter-turn ball valve on our deluge valves.

The bypass ball valve is clearly labeled and would be visible to any trained personnel that needs to override our ABC valve.

In addition, if an ABC valve were to fail it would fail open, further reducing the concern of losing water pressure based on malfunctions.

Certain buildings in the country and around the world are high-profile targets for terrorism and other events that are not covered under the scope of NFPA 13 or 14.

To generally prohibit the use of the ABC valve is a disservice to these buildings that depend on the integrity of the standpipe systems to prevent loss of fire reserve water and the ability to pressurize standpipes to fight other parts of the building.

At minimum there needs to be an established criteria that can be used for UL and FM testing should an ABC valve be necessary for given installations.

MR. POOLE: Thank you. Mr. Leyton, would you like to offer the position of the Technical Committee on Standpipes?

MR. LEYTON: Thank you, Mr. Poole.

It was brought to the attention of the Technical Committee on Standpipes that automatic reach valves are being installed in standpipe systems.

But the standard contained no prescriptive standard of care for the arrangement, installation, and testing of these valves.

A task group was assigned to research and recommend committee action regarding breach valves, which ultimately led to discussion by the technical committee.

The consensus concern was and is that breach valves could have detrimental effects on firefighting operations and are subject to a wide range of variables, as just explained, that could impair firefighting water supply.

Since it may not be possible during a firefighting operation to determine the set maximum flow for the valve there is a potential that the valve may close and shut off water to firefighters that are actively attacking a fire.

Modern high-rise firefighting tactics may utilize a combination of hand lines and interior monitors that could require flows in excess of 1,000 GPM from mains equipped with breach valves.

How the valve is set and commissioned into service limits the potential downstream flow and may not be undertaken without fire department collaboration or approval. In such circumstances no consideration is given to tactics and equipment that may be deployed by the fire department.

ABC valves are available with a wide range of flows and can be variably set anywhere along the performance curve for that valve, which may or may not be adequate for some scenarios. They're available with pressure ratings from 250 to 400 PSI.

But NFPA 14 has evolved over the past four cycles to enable water supply designs with no working pressure limit to enable efficient and reliable zoning of standpipe systems in very tall buildings.

This creates inherent limitations and potential conflicts where ABC valves might be considered for installation where such buildings are furnished with high-pressure water supplies.

The technical committee was not provided with nor were members aware of technical data or testing supporting their safe use in standpipe systems specifically.

In fact there are no set or published guidelines or generally accepted best practices that the committee is aware of that establish standards of care for sizing, location, arrangement, or the number of valves that would be required or how they should be configured for single versus multiple-zone systems.

The question we must ask is why should these valves be installed on a system and what are we resolving by their use?

In the proposed 2024 edition Section 9.6.2 of the standard -- and that is Section 6.3.2 in

preceding editions -- already require that systems be furnished with sectional control valves that isolate individual standpipes and be arranged so that the shutting down of any standpipe does not interrupt the water supply to other standpipes.

In that regard standpipe systems are already required to be equipped with a form of a manual breach control. And Section 7.5.3 permits the use of listed automatic valves as well.

So what would we be fixing in the standard by allowing the use of a non-listed automatic breach control valve? Flow and pressure capabilities and components that affect the water supply are critical aspects of performance.

And NFPA standards have historically placed great value on those specific parameters and listing of components that could encumber or impair the functionality of a fire protection system.

With an infinite number of potential flow and pressure variations the use of these valves without an exacting standard of care for installation, testing, and maintenance was seen by the committee as a potentially catastrophic weak link in standpipe water supplies.

In fact some risk management and insurance

stakeholders agree and have recommended against or prohibited the use of breach valves.

Pursuant to the task group's work and committee discussion, the action was taken to prohibit the use of breach valves on standpipe systems.

MR. POOLE: Thank you, Mr. Leyton.

With that, let's open debate on the motion. Please provide your name, affiliation, and whether you're speaking in support of or against the motion. Microphone No. 4, Mr. Caputo.

MR. CAPUTO: Thank you, Mr. Chair. My name is Bob Caputo. I'm the president of the American Fire Sprinkler Association, and I represent the association and its approximately 1,500 members.

I think it's important for this body to know that the NFPA 13 Committee, which is in its second draft revision cycle, has adopted this exact same language for NFPA 13.

Both committees concur that installing these valves could and would be catastrophic. In fact the action of these valves would literally remove the word automatic from automatic fire sprinkler systems and automatic standpipe systems which rely upon an automatic water supply to

function.

It should also be noted that standpipes are not just providing water to upper levels for firehose valves but often feed and do feed the fire sprinkler systems at those upper levels.

I'm fond of the phrase when seconds count first responders are minutes away. Removing the automatic water supply from these systems is absolutely the wrong thing to do. And I encourage this body to reject this motion. Thank you.

MR. POOLE: Thank you. Microphone No. 3?

MR. CHISM: I would like to note that we had UL onsite at our facility back in 2019 to perform an investigation on our automatic breach control valves to start to put together the --

MR. POOLE: Excuse me, can you please state --

MR. CHRISM: Sorry.

MR. POOLE: -- your name and affiliation? We have --

MR. CHISM: Kyle Chism.

MR. POOLE: -- for the record, please --

MR. CHISM: Sorry, sir. I'm Kyle Chism with the Cla-Val Company. And so UL was onsite --

MR. POOLE: For or against the motion?

MR. CHISM: Sorry. I am supporting the motion, sir.

MR. POOLE: Thank you.

MR. CHISM: So UL was onsite. And we started to establish a criteria where there would be different flows, different sizes, and what our pilot would be set to to start to establish a criteria of installing breach control valves.

It was told to us that we could not publish this because there is not a standard within UL that would allow us to put a UL stamp or anything related to UL on our research. That is why we are pushing to get a UL or FM standard that we can test our valves to.

So we've had that since 2009. And we established the test procedures that a majority of the brand new buildings that have been built in New York are following on a monthly procedure schedule currently to ensure that our valves are set properly.

And those have been passed every single month. And we are now moving to an annual testing of those pilot valves. So we established the test procedures back in 2013 and have modified as we have gone on to learn more about these valves.

Yes, they are new. They're not as known as our relief and reducing valves. But these valves work. And they are extremely -- they've passed everything that they have been put up against.

MR. POOLE: Thank you. Microphone No. 2, state your name, affiliation, and support or against the motion.

MR. HOPKINS: Good morning. Darren Hopkins, National Fire Sprinkler Association, speaking against the motion.

With the lack of technical data on these control valves that were brought forward there's an extreme concern that we're adding a single point of failure for the fire service, putting them in an extremely difficult position.

Currently these systems are provided with control valves that can isolate different sections of the system. And to have a valve that could lead to a single point of catastrophic failure is extremely challenging. And I urge support against this motion.

MR. POOLE: Thank you. Is there any further discussion on Motion 14-17 to reject?

Seeing none, Mr. Leyton, would you like to make any final comments?

MR. LEYTON: I would ask voting membership to refer back to my opening statement, which reflects the committee's very strongly-held consensus opinion that this is not the time to allow these valves. The maker of the motion has explained that the listing and testing process is still in its infancy.

At such time as best practices and standards of care with strict installation guidelines can be established and verified by nationally recognized testing laboratory, we ask that you support the committee's action and reject this motion.

MR. POOLE: Thank you. Before we vote let me restate the motion. The motion on the floor is to reject Second Revision No. 28. To vote touch the vote button.

If you wish to vote in support of the motion type yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote.

The voting will close in five seconds. Voting is closed. The results of the vote are shown on the screen. 248 to 242. 248 to 242. Motion fails. Thank you. Now let's proceed discussion on

Certified Amended Motion 14-18. Microphone No. 5?

MR. BRACKETT: Thank you, Mr. Chair. Joshua Brackett, Banner Health. I'm in support of CAM 14-18 and the submitter of 14-18 to remove language SR35.

MR. POOLE: Thank you. There's a motion on the floor to reject Second Revision No. 35. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: We have a second. Please proceed with the discussion on the motion, Joshua, please.

MR. BRACKETT: The committee language in SR35 requires that hose connection valves not listed for pressures shall be provided with one or more openings the total cross-section area of at least eight inch in diameter.

The committee's statement related to SR35 -- the committee stated there are concerns that cap failures due to pressures being non-rated cap which may cause significant water damage, water hammer, or injury to a person near the cap failure.

While I do not agree that -- or do not disagree that the excessive pressure on the cap could result in a potential injury, there is not

enough documented evidence to determine the concurrent impacts.

The primary purpose of hose connection caps, as indicated in 783, is to protect the threads on the hose connection. One item noted in the committee's statement is that a cap failure may cause significant water damage.

As an owner who manages codes and regulations for hospitals and healthcare at Banner Health, which is a heavily-regulated industry, we have more than 1,400 hose connections across close to 400 stairwells. Over 90 percent of these are combination standpipe sprinkler systems.

Further we have documented evidence of finding hose valves in the open position with the hose valve cap intact. It must be noted that hose valves are not electrically monitored.

The presence of an eight-inch hole in these caps would cause significant water damage. And since these are combination, NFPA 13 2022 -- water flow to alarm devices are not designed nor required to activate unless the flow of water from a sprinkler system is equal to or greater than that of a single automatic sprinkler with the smallest K factor within 100 seconds after such flow begins.

Per NFPA 2025, 2023 edition, 13.6.1.1.5, we are only required to inspect hose valves on a quarterly basis for leaks. However three months of flowing water from a eighth-inch hole will undeniably cause significant water damage.

In addition of this -- the addition of this text would place an undue burden on owners to monitor if leaks are present on a continuous basis.

I agree with the intent of the committee's statement, however more data is necessary and considerations of the unintended burden must be addressed.

MR. POOLE: Thank you, Mr. Brackett.

Mr. Leyton, would you like to offer the position of the Technical Committee on Standpipes?

MR. LEYTON: Thank you, Mr. Poole.

The Technical Committee on Standpipes added Section 7.8.3.1 requiring hose connection caps to have one or more small diameter holes to alleviate packed pressure that can occur under certain circumstances.

If a valve is tightly capped and left partially open during testing or tampered with, or if the valve seat should leak and allow system pressure into the hose connection, the cap can

become a projectile when loosened.

This poses a potentially grave risk to firefighters, service technicians, and building occupants. And such occurrences have been documented in the fire protection contracting community.

In an effort to minimize water damage or potential injury the committee agreed that this simple step will both alleviate the potential for packed pressure and also serve as a visual indicator of trouble at the valve should it fail as a result of fatigue or being left in the open position for whatever reason.

Section 7.8.3 requires that hose connection threads be protected, as the committee agreed that the longstanding requirement to protect threads on class one hose systems should be retained.

The purpose of hose caps is only to protect the threads. They are not required to be pressure rated. Limitation of the hole to one-eighth of an inch aggregate area does not permit a high rate of flow and does provide a distinct visual indication that there may be trouble at that hose connection.

MR. POOLE: Thank you. With that, let's open the debate on the motion. Microphone No. 4, please provide your name, affiliation, whether you're speaking for or against the motion.

MR. LONG: Tom Long with Exponent. I'm speaking against the motion. I have personally investigated two large high-rise building incidents where hose caps failed catastrophically when hose valves were left open.

Those failures not only caused water damage from the failed caps but then consequently in both those systems there were very large water hammer incidents that caused significant damage in the standpipes as well as the connective sprinkler systems, which caused millions of dollars of damage and then also took out those systems for many, many months. Thank you.

MR. POOLE: Thank you, Mr. Long.

Microphone No. 5, state your name, affiliation, and whether you're speaking for or against.

MR. BRACKETT: Joshua Brackett, Banner Health. I'm in support of CAM 14-18. Again I want to state that the eighth-inch hole does not trigger a water flow event. From an owner's perspective

this is an undue burden which can result in significant water damage.

I agree with the intent. But it is -- the eighth inch is an arbitrary value. And I think it should be revisited by the committee in the next cycle.

MR. POOLE: Thank you. Microphone No. 2, state your name, affiliation, and whether you're for or against.

MR. HOPKINS: Darren Hopkins, National Fire Sprinkler Association speaking against the motion. I want to make it clear that this has been identified as a clear potential hazard for people working in and around these valves.

These caps are required strictly for thread protection. They are unlisted caps. If there's a need to hold back water at these valves there are listed caps available for that purpose. This is only specifically addressing non-listed caps, which could be plastic or any other material and not required to withstand any type of pressure.

MR. POOLE: Thank you. Is there any further discussion on Motion 14-18 to reject Second Revision No. 35?

Seeing none, Mr. Leyton, would you like to

offer comment?

MR. LEYTON: I would ask the voting membership to consider the comments made in my statement. With regard to the observation by the motion maker that a one-eighth inch hold will not trigger a water flow alarm, the committee actually understood and considered that in arriving at its decision.

The purpose of the hole is proposed to be a visual indicator only. And we believe it will be an effective one. Thank you.

MR. POOLE: Thank you. Before we vote let me restate the motion. The motion on the floor is to reject Second Revision No. 35. Touch your vote button.

If you wish to vote in support of the motion touch yes. If you wish to vote against the motion touch no. Please record your vote.

Voting will be closed in five seconds.

The motion fails 235 to 70. Thank you.

Now let's proceed to the discussion on Certified Amended Motion 14-10. Mr. Hall, microphone number one, please state your name, affiliation.

MR. HALL: Thank you, Mr. Chair. Kevin

Hall with the American Fire Sprinkler Association. I move to reject Second Revision 36.

MR. POOLE: Thank you. We have a motion to reject Second Revision No. 36. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: We have a second. Mr. Hall, please proceed.

MR. HALL: Thank you, Mr. Chair. For this cycle there was a substantial effort to codify the redundancy in very tall buildings that exceeded the pumping capabilities of the fire department.

The reorganized 2024 edition of NFPA 14 requires an auxiliary water supply to be provided when the fire department cannot supply systems where the demand through the fire department connection to any zone or portion of the zone.

Additionally the first draft report did not require the fire department connection to be provided for zones partially or wholly beyond the pumping capabilities of the fire department.

In the second draft report the provision to omit the fire department connection from a zone partially beyond the pumping capabilities of the fire department was removed.

This action is not consistent with the corresponding requirements in NFPA 14 and the language in Section 10.7.1.1. It should revert back to the first draft version.

While the fire department could theoretically partially supply a zone, it is not possible unless there is a failure of two automatic water supplies. This concept is explained in the annex text of the Section 10.7.1.1 and contradicts the second revision text.

The annex language speaks for itself and explains exactly why a fire department connection is not required for these partial zones.

As seen on the screen, the annex section reads where a vertical standpipe system zone spans heights that are partially or wholly beyond the pumping capabilities of the fire department redundant automatic water supplies are required.

The maximum pumping pressure supplied by the FTC would not overcome the system pressure and would be locked in by the check valve that's required on every single fire department connection.

For the FTC and a partially-supplied zone to have any material value both redundant supplies would have to fail or be impaired.

The presence of an ineffective fire department connection that feeds a zone that the fire department will never be able to supply adds an unnecessary cost of the system. It is unreasonable to require a fire protection feature that provides no material value.

While there are arguments that the fire department capabilities may improve in the future, the purpose of a minimum standard is to supply the appropriate devices and pertinences based on the criteria available at the time of the design and installation.

Zones partially above the pumping capabilities of the fire department do not need to be provided with a fire department connection. And I encourage everyone to support the motion to reject the second revision.

MR. POOLE: Thank you, Mr. Hall.

Mr. Leyton, would you like to offer the position of the committee?

MR. LEYTON: Thank you, Mr. Poole. The technical committee reviewed and revised Section 7 point -- excuse me -- 10.7.1.1 as it relates to buildings with zones removing partially or -- the words partially from the requirement.

The discussion of the issue focused on whether it was better to provide a partial water supply to a zone of which a portion may be beyond the fire department's pumping capability versus none.

It was the committee's consensus belief that partial supply enhances firefighter safety and firefighter capabilities by enabling portions of the zones to be supplied at the minimum required pressure.

And potentially also allows higher portions to be supplied at usable flow rates, albeit with lower residual pressures than prescribed in the standard.

This change increases the height at which fire hose lines can be supplied with pressure from the fire department engine. Where zones are wholly above the fire department pumping capability a fire department connection is not required and the fire department is solely relying on the in-building fire protection systems to supply their hose lines.

The committee considered this when the exception was approved and strengthened the water supply redundancy water redundancy requirements for zones both wholly and partially above the fire

department's pumping capabilities.

The option to restrict or relax this requirement can be exercised by the serving fire department with consideration of their own pumping capabilities and operational tactics and strategies based on those capabilities.

MR. POOLE: Thank you. With that, we will open the debate on the motion. Please provide your name, affiliation, and whether you're speaking for or against the motion. Microphone No. 5?

MR. HOPKINS: Darren Hopkins, National Fire Sprinkler Association, speaking for the motion. Currently the standard does not require fire department connections for zones above the level of fire department pump capabilities.

The technical committee chose in this motion to reduce or to add redundancy -- full redundancy -- to the systems.

And to add a second redundancy that is costly as the standard requires two fire department connections on each zone seems to be unreasonable. And I would support this motion.

MR. POOLE: Thank you. Microphone No. 5, please state your name, affiliation, and whether you're speaking for or against the motion, please.

MR. DAGENAIS: Thank you. Dave Dagenais, Wentworth Douglas Hospital, speaking on behalf of the healthcare section in favor of this motion. At the healthcare section membership meeting the other day the healthcare section voted unanimously to support this.

It's critical that we look at the concept of fully, wholly, or partially. And the reality is that you either have it or you don't.

So this requirement has been backed up in a variety of other secondary safety features. This is unnecessary. And I urge you to support the motion.

MR. POOLE: Thank you. Microphone No. 5, state your name, affiliation, and whether you're speaking for or against.

MR. VICTOR: Terry Victor with Johnson Controls speaking for the motion. It has already been stated there are redundant water supplies for these zones -- even those that cross that threshold from where the fire department can actually pump effectively into that partial zone.

But because of the zone that's above that pumping capability there is a dual supply -- dual fire pumps and a dual water supply for those zones.

So the fire department connection is in essence ineffective whatsoever.

If the fire department does try to pump into a fire department connection feeding those zones they're not going to have any results whatsoever and able to support any sort of additional pressure or flow to those zones. They can't override what those redundant fire pumps are doing in the higher zone.

If this allowance to have that fire department connection serve those zones that are partially -- it's going to cause a lot of confusion for the design engineers, for the technicians that are laying out the systems, for the plan reviewers.

And it's going to require installation of standpipe systems that really have no purpose whatsoever. So there's a cost involved too. So I would support this motion and ask the membership to do the same. Thank you.

MR. POOLE: Thank you. Is there any further discussion on Motion 14-10 to reject Second Revision No. 36?

Seeing none, Mr. Leyton, would you like to make any final comments?

MR. LEYTON: No, sir. I would ask the

membership to consider my comments in the opening statement.

MR. POOLE: Thank you.

Seeing none, before we vote let me restate the motion. The motion on the floor is to reject Second Revision No. 36.

To vote touch your vote button. If you wish to vote in support of the motion touch yes. If you wish to vote against the motion touch no. Voting will be closed in five seconds. Thank you.

241 in support of the motion, 56 against the motion. The motion passes.

Are there any final discussions on NFPA 14? Seeing none, thank you. That concludes the consideration for all of the certified amended motions for NFPA 14.

We will now move on to the next standard on the agenda, which is NFPA 45, Standard on Fire Protection for Laboratories Using Chemicals. Ms. Janna Serafin, will you please present the chair report?

MS. SERAFIN: Thank you, Mr. Poole.

Ladies and gentlemen, the report of the Technical Committee on Laboratories Using Chemicals of NFPA 45 Standard on Fire Protection for

Laboratories Using Chemicals is presented as found in the first draft report and the second draft report for the fall 2022 revision cycle.

The technical committee has published a first draft report and a second draft report consisting of revisions to NFPA 45. The revisions were submitted by letter ballot of the responsible technical committee.

The reports and ballot results can be found at the next edition tab of the document information page for NFPA 45 at www.nfpa.org/45next.

With that reported, I move for Standards Council issuance of the committee's report on NFPA 45 Standard on Fire Protection for Laboratories Using Chemicals.

MR. POOLE: Thank you. Now let's proceed to discussion on 45-1. Microphone No. 1?

DR. HIRSCHLER: My name is Marcelo Hirschler, GBH International, representing NFPA. And I am -- I move CAM 45-1.

MR. POOLE: Thank you. There is a motion on the floor to accept public comment number five. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: Thank you. We now have a

second. Please proceed with the discussion, Dr. Hirschler.

DR. HIRSCHLER: Thank you. Marcelo Hirschler, GBH International for NFPA, and in support of the motion.

The Standard on Laboratories Using Chemicals has no information on case furniture. That means that it is likely or at least possible that some labs might want to use plastic folding tables that are very flammable because they're constructed of cheap plastic with very poor fire performance.

When I submitted the public input which recommended the use of other known combustible materials or Class A flame-spread materials or materials complying with NFPA 101 Section 10.2.3 the committee said the flammability of case furniture is not a concern because the labs have a lot of flammable and explosive materials present.

In other words, the labs have so much flammable and explosive material -- stuff there that adding more is not a problem. That sounds like very weird justification.

When I made my comment asking the -- making the requirements for case furniture much

milder and providing more options, as you can see on the screen, noncombustible materials, limited combustible materials, wood materials, or materials meeting a Class C in accordance with ASTM E84, the committee still opposed it.

The public comment would allow any wood table and many other materials to comply. The requirements are ones that any wood material complies with. And there would be no need to test for wood or for known combustible materials like metallic tables since they're explicitly permitted.

The committee also opposed this with the rationale that they want to use case furniture made of plastics materials that would not comply.

In other words, since there's so much flammable and explosive stuff present they want to make sure that they can add more flammable stuff. Seems weird. I don't understand. It would be essential to add highly flammable plastic tables?

Remember, I love plastics. I'm all in favor of using plastics as long as they have the proper fire performance. However I am strongly opposed to using highly flammable plastic.

The added excuse that these labs have sprinklers -- that's true. But do we really want to

have efficient sprinklers only when we can -- we add very flammable materials? Always important to combine active and passive fire protection.

Avoid very dangerous materials. The highly flammable plastic tables the committee wants to have may result in the ignition of some of the flammable and explosive materials present and cause a serious problem.

The issue is the case furniture lab should not simply be flimsy plastic tables -- can burn very vigorously. Committee said there is flammable and explosive material present in a lab. But they don't feel the case furniture be regulated.

(Indiscernible), the committee seems therefore to be that since there's flammable, explosive materials -- anything else such as furniture -- it wouldn't affect anything and shouldn't be regulated. I think that's dangerous environment. It sounds scary. Please comply with the motion. Thank you.

MR. POOLE: Thank you, Dr. Hirschler.

Ms. Serafin, would you like to offer the position of the Technical Committee on Laboratories Using Chemicals?

MS. SERAFIN: Thank you, Mr. Poole.

The technical committee reviewed public input number 33 at the first draft meeting, which proposed revisions to provide a Class A flame spread rating for laboratory furniture.

The submitter did not provide a substantiation for the need for the Class A rating besides the potential for fires based on the occupancy of a chemical laboratory.

There was an extensive discussion of the proposal and the justification for this change. The committee reviewed past laboratory fire events. It did not find any events where the severity of the fire was increased due to the type of the laboratory furniture that was used.

In addition, since the 2004 edition NFPA 45 requires new laboratories to have automatic quick response fire sprinklers or another type of fire protection to limit the spread of fires.

The use of quick response sprinklers was based on testing performed by NIST for chemical laboratories with a spill of four liters of flammable liquid.

The testing demonstrated the quick response sprinkler has the ability to rapidly contain the fire and to limit the temperature rise

in the room.

To the best of my recollection the committee voted unanimously to reject the proposal. During the second draft meeting public comment number five was reviewed, which proposed revised text to allow metal, limited combustible wood, or other case furniture with a flame spread rating of 200 or less.

The submitter did not provide any documentation or justification for the need for this change other than flammable chemicals are being used in laboratories.

The committee again discussed the proposed change and in the end rejected the change based upon the lack of documentation demonstrated in the need for the case furniture to have a flame spread rating of 200 or less.

The use of quick response fire sprinklers in new labs will also limit the spread of fire. To the best of my recollection the committee voted unanimously to reject the proposal.

MR. POOLE: Thank you. With that, we'll open the debate on this motion. Microphone No. 5, please provide your name, affiliation, and whether you're speaking for or against the motion. Or 4.

I'm sorry.

MR. HARA: Okay. Thanks. Neil Hara, Pacific Northwest National Laboratory. I'm speaking against the motion.

The proposed change to NFPA 45 would add requirements to limit flammability for case furniture in labs. There's no definition for case furniture in the proposed change.

Laboratories are very unique occupancies. And the nature of the research projects requires labs to have great flexibility in the types of equipment and furnishings in them to perform research.

I've worked in research labs for many years. And there have been occasions where plastics types of furniture in case work were needed for research, especially when projects involved work with acidic environments.

One project in particular involved research with fire-resistant type chemicals with an acidic environment. So fire-resistant chemicals -- they were not allowed in this laboratory work area because they would contaminate the research.

The proposed change would also apply a life safety code like requirements for the interior

of laboratories that have very low levels of occupancy.

The proposed change did not provide any substantiation for the need for this change based on reports of fires that have involved laboratory furniture or flammability of the furniture was found to have caused injury or death to lab occupants.

I've investigated and reviewed many laboratory fire events. And none of these events have indicated that flammability of the furniture was a contributing cause to the severity of the fire.

In modern labs where fires have occurred and fire sprinklers are installed, particularly the quick response, the sprinklers have contained and/or extinguished the fire. So --

MR. POOLE: Thank you. Microphone No. 1, please state your name, affiliation, and whether you're speaking for or against the motion.

DR. HIRSCHLER: Marcelo Hirschler, GBH International for NFPA, and I speak in favor of the motion. The rationale that's just been given is that the sprinklers do the job. Sprinklers are wonderful. I don't disagree in the least.

However what we've been seeing throughout

the history of NFPA and fire services is that we need redundancy. We need both active and fire -- passive fire protection. And this is an issue of passive fire protection.

The fact that I don't know of any incidents doesn't mean that I don't want to make sure that we don't use very flammable materials that can cause an additional fire in an area where, according to the committee, there's plenty of flammable and explosive materials present. We want to -- we don't want to add more flammable materials. Thank you.

MR. POOLE: Thank you, Dr. Hirschler.

Is there any further discussions on Motion 45-1 to accept public comment number five? Seeing none, Ms. Serafin, would you like to make any final comments?

MS. SERAFIN: I'd ask that the membership refer to my original statement and recognize that the committee agreed there is no technical justification or fire events that would warrant the limitations on laboratory furniture that are proposed.

MR. POOLE: Thank you. Before we vote let me restate the motion. The motion on the floor is

to accept public comment number five.

To vote touch your vote button. If you wish to vote in support of the motion touch yes. If you wish to vote against the motion touch no.

Please record your vote. The voting will close in five seconds.

The results of the vote are 76 in support of the motion and 212 against the motion. The motion failed.

Are there any final comments or discussions on NFPA 45?

Seeing none, that concludes the considerations of all of the certified amended motions on NFPA 45.

We will now move on to the next standard on the agenda, which is NFPA 58 Liquified Petroleum Gas Code. Good morning, Mr. Smith. Would you please present the chair's report.

MR. E. SMITH: Thank you, Jack.

Ladies and gentlemen, the report of the Technical Committee on Liquefied Petroleum Gas of the Liquified Petroleum Gas Code is presented as found in the first draft and second draft report for the fall 2022 revision cycle.

The Technical Committee on Liquified

Petroleum Gas has published the first draft and second draft report consisting of the revisions to NFPA 58 Liquified Petroleum Gas Code.

The revisions were submitted by letter ballot of the responsible Technical Committee on Liquefied Petroleum Gas.

The reports and ballot results can be found at the next edition tab on the document information page for NFPA 58 Liquefied Petroleum Gas Code at www.nfpa.org/58next.

With that reported, I move for the Standards Council issuance of the committee's report on NFPA 58 Liquefied Petroleum Gas Code.

MR. POOLE: Thank you, Mr. Smith.

Now let's proceed with a discussion on Certified Amended Motions 58-5, 58-6, and 58-7. Microphone No. 5, please state your name and affiliation.

MR. WAGNER: Good morning. My name is Christopher Wagner. And I am with Amerigas Propane LP. My motion is to reject Second Revision No. 16.

MR. POOLE: Thank you. There is a motion on the floor to reject Second Revision No. 16. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: We have a second. Please proceed, Mr. Wagner.

MR. WAGNER: During the second revision -- I'm sorry. During the first revision meeting of the technical committee we agreed to set the maximum discharge pressure for a vehicle fuel dispenser at 350 PSIG with the agreement that pressure would be contingent on the results of testing that was being undertaken by the Propane Education Research Council.

At the time of the second revision meeting this testing was still ongoing. And as such I made a motion to revert this pressure back to the original 312 PSIG.

Since the conclusion of the technical committee's second revision meeting testing was completed and published by Southwest Research Institute proving that pressures in excess of 350 PSIG are safe and pose no risk to operators, systems, or containers.

This pressure is necessary in certain areas to overcome high head pressures within containers in elevated temperature requirements. So we recommend that we revert back to the originally agreed upon 350 PSIG.

MR. POOLE: Thank you, Mr. Wagner.

Mr. Smith, would you like to offer the position of the Technical Committee on Liquefied Petroleum Gases?

MR. E. SMITH: Thank you. The proposed amending motion seeks to delete the Second Revision 16, which aims to change the output pressure of the dispensing system for a self-service engine fuel dispenser from 312 PSIG to 350 PSIG.

At the time of the second revision it was unknown if the container relief valves or other downstream components could handle the initially proposed 350 PSIG outlet pressure.

And the technical committee proposed a lower output pressure of 312 PSIG to prevent damage to downstream components and prevent relief valves from discharging when filling the engine fuel component containers.

MR. POOLE: Thank you. With that, let's open the debate on the motion. Anybody?

Seeing none, is there any further discussion on Motion 58-5, 58-6, 58-7 to reject Second Revision No. 16?

Mr. Smith, would you like to make any final comments before we vote?

MR. E. SMITH: No. Thank you.

MR. POOLE: Thank you. Before we vote let me restate the motion. The motion on the floor is to reject Second Revision No. 16.

To vote touch your vote button. If you wish to vote in support of the motion touch yes. If you wish to vote against the motion touch no. Please record your vote.

Just a single vote. Even though it does say 58-5 it's for all three. The voting will close in five seconds.

The results of the vote are 170 in support of the motion and 94 against the motion. The motion has passed.

Are there any final discussions on NFPA 58? Seeing none, thank you, Mr. Smith.

MR. E. SMITH: Thank you.

MR. POOLE: Seeing none, we'll continue to consider -- this concludes the consideration for all of the certified amended motions on NFPA 58.

We will now move on to the next standard on the agenda, which is NFPA 140, the Standard on Motion Picture and Television Production Studio Sound Stages and Approved Production Facilities and

Production Locations.

MR. TABAR: Thank you, Mr. Poole.

Ladies and gentlemen, a report of the Technical Committee on Motion Picture and Television Industry on NFPA 140 Standard on Motion Picture and Television Production Studio Sound Stages Approved Production Facilities and Production Locations was presented as found in the first draft report and the second draft report for the fall 2022 revision cycle.

The technical committee has published a first draft report and a second draft report consisting of revisions to NFPA 140. The revisions were submitted by letter ballot of the responsible committee.

The reports and ballot results can be found at the next edition tab of the document information page for NFPA 140 at www.nfpa.org/140next. With that reported, I move for Standards Council issuance of the committee's report on NFPA 140.

MR. POOLE: Thank you, Mr. Tabar.

Now let's proceed on the discussion on Certified Amended Motion 140-1. Microphone No. 1, DR. HIRSCHLER.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for NFRA. And I move Certified Amended Motion 140-1.

MR. POOLE: Thank you. There's a motion on the floor to accept public comment number one. Do I have a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: We have a second. Please proceed with the discussion, Dr. Hirschler.

DR. HIRSCHLER: Thank you. Marcelo Hirschler, GBH International for NFPA and in support of the motion. The recommended text of the motion passes -- adds to annex section Annex A453 the following after the section discusses natural vegetation issues.

You can see it on the screen. I'm not going to read it. So you can see it. But the whole -- the point is it adds information -- information about a new standard test method.

It was just approved and put into the NFPA 101 Life Safety Code. The technical committee rejected the public comment and held it because it's new material. I fully agree that this material has no associated public input.

However what is being proposed, number

one, is annex material, meaning that it is of course not a requirement -- simply information that would help those in the industry know that the new tool exists for dealing with the potential problem of having combustible natural vegetation in the motion picture/TV environments.

I point it out in my reason statement that the relevant codes in NFPA 101 and the IFC have already adopted the test method as a requirement. This means that there is precedent.

There are multiple examples, including a notable fire in a government building, of cases where the use of ineffective flame retardant treatments resulted in a natural tree dying too early and catching on fire with potentially severe consequences.

In fact the use of ineffective flame retardant treatments can also lead to a natural tree shielding -- shedding all its leaves prematurely. It's happened in a Rhode Island safehouse in 2005.

And FBA President Jane Foley emphasized on Monday we should move ahead as fast as we can with any improvements in enhanced fire safety. ASTM E3082 was only approved in 2020. And both NFPA 101 and the IFC saw that it was important enough to

include it immediately for enhanced fire safety.

The closing date for public input to NFPA 140 was January 6, 2021. I probably have barely been able to make an acceptable PI in time. If the language in this CAM is accepted it would alert people in the motion picture and TV industry that a new tool exists.

Adding this language can be done even if it's new material the membership agrees and the committee does not oppose it. It will provide guidance to the industry without mandating anything.

The industry may also be encouraged to look at the code requirements and decide that conducting the test would be useful.

In any case even if the added language has no resulting actual testing it will do no harm but provide a helpful warning. Thank you.

MR. POOLE: Thank you, Dr. Hirschler.

Mr. Tabar, would you like to offer the position of the Technical Committee on Motion Picture and Television Industry?

MR. TABAR: Thank you. The motion seeks to accept public comment number one, which was rejected but held by the technical committee on the basis of the subject being deemed to be new material

in accordance with 4.4.4.2 of the regulations governing the development of NFPA standards which states public comments must be related to material that has received public review either through the submission of public input, committee input, or correlating input or through the first revisions.

The technical committee may reject but hold any public comment that introduces new material or that has not had adequate public review.

In his submittal of public comment number one Dr. Hirschler identified First Revision No. 1 as the related item. However First Revision No. 1 related to Subsection 2.3.1, which updates UL publications and was unrelated to the subject of public comment number one.

Dr. Hirschler acknowledged that the subject of public comment number one was new material in his substantiation, which states I understand this was not discussed at the first draft meeting. But it does not introduce any requirements.

Although the proposed Annex A language does not introduce new requirements it does introduce new material which will be held for the next revision cycle.

It is noted that the technical committee took no position with respect to the technical content of public comment number one. It was rejected but held strictly based on the procedures specified by the regulations.

MR. POOLE: Thank you, Mr. Tabar.

With that, let's open debate on the motion. Microphone No. 1, please state your name, affiliation, whether you're speaking for or against.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for NFRA. The only reason that the committee held -- this rejection held is because it's new material. I understand that. Fully accept it's new material.

However again I want to reiterate what Jane Foley told us. We don't want to wait unnecessarily when we can have a new -- new information put in that will help improve safety.

This provides guidance to the committee without adding any requirement. Even though the -- this is new material it -- there is plenty of abundant evidence and abundant other examples of new material being introduced if the membership agrees and if the committee -- which as the chairman said took no position on the technical merits -- the

technical committee doesn't object.

So I urge the membership to support this -- urge the membership to move forward proactively in providing guidance to the TV and cinema -- and industry. Thank you very much.

MR. POOLE: Thank you, Dr. Hirschler.

Microphone No. 4, please state your name, affiliation, and whether you're speaking for or against the motion, please.

MR. UPSON: Bob Upson, Amentum, speaking on my own behalf. I stand in opposition to the motion. With respect to Dr. Hirschler and the merits of the language that he's proposed I think it's incumbent on the membership to defend the integrity of the process and vote against this. Thank you.

MR. POOLE: Thank you. Any further discussion on Motion 140-1 to accept public comment number one?

Dr. Hirschler, you wish to speak again, please?

Okay. Thank you.

Mr. Tabar, would you like to make a motion or make any final comments on this motion?

MR. TABAR: No.

MR. QUITER: Mr. Chair --

MR. POOLE: Or --

MR. QUITER: Mr. Chair, point of order.

MR. POOLE: Oh, I'm sorry. I didn't --

MR. QUITER: No problem.

MR. POOLE: -- see you. I apologize.

Microphone No. 4, please state your name, affiliation, and whether you're speaking for or against the motion.

MR. BAILEY: Scott Bailey speaking on my own behalf speaking against the motion. Honestly I'm neutral to the information.

But I am uncomfortable with information or data being included in an NFPA standard that has not been reviewed by the technical committee. And I think that's why the procedures are written the way they are.

So if this is indeed so important to be included in it perhaps it should be addressed as a TIA. But I'm uncomfortable with having this information in this standard without being reviewed by the technical committee responsible for this standard.

MR. POOLE: Thank you. Are there any further discussion on Motion 140-1? Dr. Hirschler,

are you wishing to speak again?

DR. HIRSCHLER: If I may. Marcelo Hirschler, GBH International for NFPA in support of the motion. This is why this issue is being brought in favor of the entire assembly.

The committee chose not to consider this without considering the merits. Again we're talking about adding information that makes the uses of NFPA 130 -- 140 -- let's them know something that is already in the Life Safety Code.

So otherwise they wouldn't know. This is why the audience is representing the entire membership more than just the technical committee. I urge you to support. Thank you.

MR. POOLE: Thank you. Are there any further discussions on Motion 140-1 to accept public comment number one?

Seeing none, Mr. Tabar, would you like to make any final comments?

MR. TABAR: The committee will be studying this further. It was rejected but strictly based upon procedures by the regulations held.

MR. POOLE: Thank you. Before we vote let me restate the motion. The motion on the floor is to accept public comment number one.

Press your touch -- touch your vote button. If you wish to vote in support of the motion touch yes. If you wish to vote against the motion press no. Record your vote. Voting will close in five seconds.

The results of the vote are 65 in favor, 211 against the motion. The motion fails.

Are there any final discussion on NFPA 140? Seeing none, that concludes the consideration of all certified amended motions on NFPA 140.

We will now move on to the next standard on the agenda, NFPA 260 Standard Methods of Test and Classification System for Cigarette Ignition Resistance of Components of Upholstery Furniture.

Good morning, Mr. Parker. Will you please present the chair's report, please.

MR. PARKER: Thank you, Mr. Poole.

Ladies and gentlemen, the report of the Technical Committee on Fire Tests of NFPA 260 Standard Methods of Tests and Classification Systems for Cigarette Ignition Resistance of Components of Upholstered Furniture is presented as found in the first draft report and the second draft report for the fall 2022 revision cycle.

The technical committee published a first

draft report and a second draft report consisting of revisions to NFPA 260. The revisions were submitted by letter ballot of the responsible committee.

The reports and the ballot results can be found at the next edition tab of the documents information page for NFPA 260 at www.nfpa.org/260next.

With that reported, I move for Standards Council issuance of the committee's report on NFPA 260 Standard Method of Tests and Classification Systems for Cigarette Ignition Resistance of Components of Upholstered Furniture.

MR. POOLE: Thank you, Mr. Parker.

Now let's proceed with the discussion on Certified Amended Motion 260-24.

Certified Amended Motion 260-24 appeared on the agenda. However no authorized individual has signed in nor approached the microphones to make this motion.

Seeing that the maker of the motion nor the identified designated representative have approached to make the Motion 260-24, in accordance with NFPA rules the motion may not be considered by the assembly as a certified amended motion and is removed from the agenda.

We will now move to the next motion. This concludes the consideration of all certified amended motions on NFPA 260.

We will now move to the next standard on the agenda, which is NFPA 286 Standard for Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

Mr. Parker, will you present the report -- chair's report?

MR. PARKER: Thank you, Mr. Poole.

Ladies and gentlemen, the report of the Technical Committee on Fire Tests of NFPA 286 Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth is presented as found in the first draft report and the second draft report for the fall 2022 revision cycle.

The technical committee published the first draft report and a second draft report consisting of revisions to NFPA 286. The revisions were submitted by letter ballot of the responsible committee.

The reports and ballot results can be found at the next edition tab of the document information page for NFPA 286 at

www.nfpa.org/286next.

With that reported, I move for Standards Council issuance of the committee's report on NFPA 286 Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

MR. POOLE: Thank you, Mr. Parker.

Now let's proceed with the discussion on Certified Amended Motions 286-14, 286-15, and 286-16. Microphone No. 5, Mr. Long, please state your name and affiliation.

MR. LONG: Thank you, Mr. Poole. Tom Long, fire protection engineer with Exponent Inc. I'm here on behalf of ASI Southeast, a manufacturer of HDE bathroom partitions. And I'm speaking in support of the motion to reject Second Revision No. 1.

MR. POOLE: Thank you. There is a motion on the floor to reject Second Revision No. 1. Do I have a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: Having a second, thank you. Mr. Long, please proceed.

MR. LONG: Thank you. Tom Long, Exponent Inc., behalf of ASI Southeast. So I'm here to talk

to you today about bathroom partitions -- toilet partitions in particular.

And as I go through this I want all of you who have used the facilities behind me to keep in mind that when you were in there you were surrounded by bathroom partitions.

They did not extend from the floor all the way to the ceiling. And I can assure you they weren't spaced six inches apart. You wouldn't fit.

From a high level this revision is incomplete. It's not clear. It's confusing. It lacks specific mounting information. And it's not proven and based on good experimental methods.

So some real brief background for the membership. The IVC requires that HDPE toilet partitions be tested in accordance with NFPA 286. NFPA 286 is the room corner test.

Essentially you put the material on three walls left, right, and rear -- and you put a burner in the corner.

This new proposal is saying that you should extend those bathroom partitions six inches out from the left, the right, and the rear. So you essentially have a U inside of a U.

These bathroom partitions are then

supposed to be mounted with bolts that are nine inches long and one quarter inch in diameter.

I can assure you that if you used the facilities that there were no bolts that were nine inches long and a quarter inch diameter going through those toilet partitions.

The manufacturer's instructions do not require you to mount things from the floor all the way to the ceiling. They do not require you to use the washers that are specific in there.

The figures that are included in the proposed revision -- and I encourage you to follow that link up on the screen and see it -- do not include dimensions. They have arrows that are pointing to things that are mislabeled.

And this six-inch gap that's being proposed -- there is no scientific justification for why it's six inches. Why isn't it seven inches, two feet? There's no information about that whatsoever. So thank you for your time. And again supporting the motion to reject this second revision. Thank you.

MR. POOLE: Thank you, Mr. Long.

Mr. Parker, would you like to offer the position of the technical committee?

MR. PARKER: Yes; I would. Thank you, Mr. Poole.

In May of 2020 the Fire Test Committee established a task group to draft the public input to NFPA 286 on the mounting methods for high-density polyethylene plastic bathroom partitions.

The task group presented their work at the March 2021 first draft meeting and a committee input was developed. New language included the stud spacing, fastener details, and panel wall coverage details.

Further revisions were made during the second draft through a public comment and resulting second revision.

The second revision received 2 editorial ballot comments, 1 negative comment, and 20 affirmative votes. A supplemental ballot was conducted to revise errors to Figure 5.12.2. Thank you.

MR. POOLE: Thank you, Mr. Parker.

With that, let's open the debate on the motion. Microphone No. 2, would you please state your name, your affiliation, and whether you're speaking for or against the motion?

DR. HIRSCHLER: Marcelo Hirschler, GBH

International, for the Vinyl Institute and in opposition. I'm a member of the Fire Test Committee. But of course I do not speak for the committee.

At the first draft meeting the committee discussed a proposed mounting method for bathroom partition assemblies in order to allow the committee and the public to provide input.

No first revision was proposed. But the committee created a committee input which was publicly available. In fact, the committee input is still available on the NFPA website in the section about the next edition NFPA 286 now.

The only public comment that was submitted to the -- that committee input was one proposing that the committee input we adopted with slightly revised language, which is committee date of the second draft meeting. At the time the committee created a second version based on committee input and public comment.

There is a definite need for such a mounting method for NFPA 286 since, as Mr. Long explained, the building code and the Life Safety Code both require -- as well as the IBC and IFC -- that such bathroom partitions be considered interior

finish.

This is covered in Chapter 10 of NFPA 101 and 5000, 8 of the IFC and IVC. Fire testing is to be done using either ASTM E84, the Steiner Tunnel, or NFPA 286. Most manufacturers typically choose testing using ASTM E84, which is much less expensive. But not all materials are allowed to be tested with ASTM E84.

All these codes state in the same chapter, staying with their finish, that finished materials made of polypropylene, high-density polyethylene, HDPE, shall be tested in accordance with 286 and not in accordance with E84. Actually both 101 ad 5000 extend this requirement to solid thermal plastics and a bunch of other thermal plastics.

The reason is that polypropylene and HDPE typically melt and drip when exposed to flames from the E84 standard down. And we come test specimens that are not self-supporting.

In fact the ASTM E5 just finished creating a definition for what is a self-supporting test specimen in E84.

Continuing in terms of the need for the change to E86 where E84 has a specific mounting method for these test specimens -- not self-

supporting -- and also specific information for other plastics. NFPA 286 lacks all such information.

That means that labs that are required to test materials used for partition to 286 have been choosing their own nonstandard mounting method because no standard mounting method exists.

This is particular important when dealing with bathroom partitions made of thermal plastic materials such as HDPE, which are very common in this application. Please oppose this CAM because it will avoid creating a needed standard in mounting method. Thank you.

MR. POOLE: Thank you, Dr. Hirschler.

Microphone No. 1, state your name, your affiliation, and whether you're speaking for or against the motion for the record, please.

MR. DILLON: Good morning. My name is Scott Dillon of Engineering Systems Incorporated speaking on behalf of Scranton Products, a manufacturer of high-density polyethylene bathroom partitions. And I support this motion.

I'm a fire protection engineering consultant, a member of the NFPA Fire Test Technical Committee. And like Dr. Hirschler I'm not speaking

on behalf of the committee. But I have several years of experience in fire testing, including NFPA 286.

As a former fire testing engineer at Southwest Research Institute and as an engineering consultant I've conducted, overseen, and witnessed dozens of NFPA 286 tests, including tests of HDPE bathroom partitions.

I support this motion because I do not believe that it has adequate technical justification. It does not provide well-defined guidance to testing labs on how to mount bathroom partitions for testing in accordance with NFPA 286.

The new mounting requirements are unclear, confusing, not in accordance with typical installation configurations, not in accordance with manufacturer's instructions, and contradict requirements provided in other portions of the standard.

For example, the new mounting requirements indicate partitions be mounted parallel to the room walls with a six-inch standoff using steel studs.

Bathroom partitions by their very nature are not installed in this manner, as discussed by Mr. Long. And this spacing requirement is arbitrary

and without adequate technical justification.

Next Section 5.12.2.5 states that the panels shall be mechanically fastened in accordance with the manufacturer's installation instructions.

This requirement directly contradicts the requirements to mount the partitions to six-inch studs with nine-inch bolts. No manufacturer's instructions would provide this type of mounting configuration. This contradiction will provide confusion to the end user -- the testing labs.

Furthermore the included figure, Figure 5.12.2, is unclear, missing critical detail, and has typos that will cause confusion. For example, the orientation of the required mounting studs is not provided.

The spacing of the mounting bolts is not provided as it is in other sections of the -- and the size of the mounting washers has been reduced from two inches as required in other sections to one and a quarter inches without justification. Also the purpose of the detail provided in the bottom right corner is unclear and confusing.

In summary I propose that this new section of NFPA 286 -- wait. I'm sorry. In summary, the purpose of this new section of NFPA 286 was to

provide guidance to testing labs on how to mount bathroom partitions for testing.

While I do not believe that the NFPA 286 test method is appropriate for the testing of bathroom partitions, the proposed mounting requirements are unclear, confusing, and without technical justification.

These new requirements will not provide the proper guidance to the testing labs that will need to implement them and are likely to cause confusion and inconsistent interpretations.

Further the new requirements are arbitrary and not technically justified. Therefore Section 5.12 for bathroom partition specimens should not be included in the next edition of NFPA 286. Thank you for your time.

MR. POOLE: Thank you, Mr. Dillon.

Microphone No. 2, please state your name, your affiliation, and whether you're speaking for or against the motion.

MR. GETTLEMAN: Thank you, Chair. I am Alan Gettleman representing Bobrick Washroom Equipment speaking against the motions.

Two points I'd like to raise. Number one is that the current NFPA 286 test methodology

requires in the room setup that the test panels be mounted directly to two of the walls. One side of the panel is exposed to any of the flame and heat that is generated during the 286 test.

We all know that -- from our experience in public washrooms that the toilet partitions, the panels, the doors, and the supporting styles are not mounted flat against the supporting wall. They are mounted at right angles perpendicular to the supporting wall.

In the event of a fire incident in a bathroom the toilet partition panels, doors, and styles would be exposed to heat and flame on both sides of the panel.

We feel that the proposal in 5.12 Bathroom Partition Systems better represents the actual installation by spacing the test panels approximately six inches from the fire room wall.

And this is -- additionally the second point I'd like to make is that the Fire Test Committee voted significantly in favor of this -- creating this new Section 5.12. And I urge you to vote against the motions to 286-14, 15, and 16. Thank you.

MR. POOLE: Thank you. Microphone No. 5,

state your name, affiliation, and whether you're speaking for or against the motion, please.

MR. STEPP: Good morning. Sorry. My name is Matthew Stepp. I am the Director of Engineering for ASI Southeast. We are a manufacturer of --

MR. POOLE: Are you speaking for or against the motion?

MR. STEPP: We are speaking to support the motion, sir. We are a manufacturer of HDPE toilet partitions and other material types of toilet partitions.

First I would like to define what is a bathroom partition. As many others have said before me -- I actually feel funny explaining this because all of us have used a public restroom.

If you go in -- for clarity purposes a bathroom partition is a partial enclosure surrounding the toilet. And its purpose is to provide moderate privacy for the user.

Standard HDPE bathroom partitions do not extend from floor to ceiling to completely compartmentalize each toilet. Instead they are mounted approximately 14 inches above the finished floor with sight lines at the edge of the doors.

Bathroom partitions are commonly installed

perpendicular to their supporting wall to create the desired privacy. Bathroom partitions are not installed on their supporting wall as a wall cover.

How should a bathroom partition be installed? Typically manufacturers installations such as ours include guidance for laying out and mounting anchors and brackets, positioning the panel, and installing the pile lashings with the panel.

Manufacturer's installation procedures do not include language on mounting the bathroom partition panels as specified standoff distance away from the parallel base wall assembly using steel studs (indiscernible).

No installation procedures provide provisions for mounting the panels to cover the entire surface of their supporting wall. In my 15 years of experience of manufacturing toilet partitions panels are not mounted six inches from the wall.

In conclusion we are concerned the committee does not fully understand how the toilet partitions are utilized or that an expert was not consulted on this matter prior to making the changes to the test procedures.

Therefore the proposed testing procedures have no relevance as to how an HDPE toilet partition or for that matter any toilet partition should be tested. Thank you.

MR. POOLE: Thank you.

Mr. Koffel, Microphone No. 6, please state your name, your affiliation, and whether you're speaking for or against the motion, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing Bobrick and in opposition to the motion. Let me first address timing. This issue was before the Fire Test Committee not at their first draft meeting for this standard but rather the meeting prior to that.

And I approached the committee and I said I think there's a need to provide mounting criteria for testing of bathroom partitions. You've heard it. We're required to test those per NFPA 101 and the IBC.

The committee agreed to that and appointed a task group. The task group results or the activity was then submitted as a committee input. So there's been multiple opportunities for people to provide input or feedback on this criteria well before today.

They could have participated in the task group. They could have submitted a public comment -- none of which was done.

So let me now address some of the technical issues you've heard. This six inches off the wall as Alan said is merely to say that we can get exposure in a typical bathroom layout on both sides of the partition.

It doesn't require you to have one HDPE partition on the base wall and then another one six inches off the wall. So this isn't saying we have to be six inches away from the wall.

I agree the mounting criteria is in excess of what some manufacturers will do or recommend as part of their installation criteria. That is identified in the committee's documentation.

We want to make sure the partition stays in place. If you use standard mounting methods that partition might collapse and it basically invalidates the test.

I'm surprised to hear Scranton Products here today saying this is confusing. Scranton Products has tested using this protocol. So this is nothing new. There's been multiple tests done to this protocol. It standardizes the test protocol.

With regard to full height or 14 inches off the floor -- we all are experiencing that bathrooms are changing. We're seeing a lot different arrangements.

Not all partitions are now 14 inches off the wall for privacy purposes so the committee basically took the standard criteria that it's the full height of the wall.

In conclusion which of the two mounting methods are more -- replicate what you're likely to see in a bathroom?

Where I put the panels on walls of a room and I have this large open space or where I put panels perpendicular to a base wall that more closely represents the layout of a typical bathroom? I encourage you to oppose this motion.

MR. POOLE: Thank you. Microphone No. 3, please state your name, your affiliation, and whether you're speaking in support or against the motion, please.

MR. BLOC: My name is Mark Bloc. I'm with Zern LK Water Solutions. And I am speaking in favor of the motion.

Okay. Zern LK Water Solutions is the owner of Hadrian Manufacturing. Hadrian is a

manufacturer of HDPE partitions. We have tested to NFPA 286 and passed.

But I would like to continue and say that the new section 5.12 proposed to be added to NFPA 286 is ambiguous and unclear. Panel mounting is confusing and not in line with manufacturer's instructions. Figure 5.12.2 does not contain enough information to mount the panels.

Here are some examples. One, it is not clear what the relationship is between the inset diagram in the lower right and the plan view diagram in the top left. Two, the vertical spacing of the mounting bolts is not given.

Three, the position of the six-inch steel studs is unclear. The text reads -- and I quote -- two six-inch steel studs 20 CA back to test. Are these meant to be back to back? Are these meant to be 20 gauge? The intent is not clear.

Four, the resulting room size -- 8 foot by 12 foot -- inside the test panels conflicts with the room size given in Section 4.2.1, which is 8 foot by 12 foot also.

Five, the air gap created with this mounting scheme conflicts with the requirements of Section 5.1.1, which in summary states that the test

specimens be mounted similarly to actual field use.

Section 5.12.2.1 states that the width and height of the panel tested shall be full standard product width and height. In the case of bathroom partitions there are many standard sizes. Furthermore this allows for inconsistencies between different manufacturers.

Section 5.12.2.4 should not exist. If the proposed Section 5.12 is specific to bathroom partitions then they would obviously not be mounted on the ceiling.

Section 5.12.2.5 requires fastening of the panels along vertical edges. This contradicts earlier mounting instructions as it implies a perpendicular configuration rather than parallel to the mounting wall. The burner location is unclear. Is it in the corner of the old room or the newly created room?

In summary this proposed edition requires significant revisions so that a proper and reproduceable test can be conducted. In its current form it must be removed. Please support this motion.

MR. POOLE: Thank you. Microphone No. 5, Mr. Long, please state your name, your affiliation,

and whether you're speaking in support or against.

MR. LONG: Thank you, Mr. Poole. Tom Long, Exponent, on behalf of ASI Southeast. I think that all the people in this room obviously use NFPA standards. And you've probably, like me, at some point picked up a standard and said where did that number come from.

I've been down that rabbit hole many times, especially with older standards. And sometimes it's very difficult to figure that out.

And this is a situation where if you look at the mounting instructions, if you look at the spacing of this wall, the numbers that were chosen are arbitrary. There is not sound, scientific, experimental methods that went into selecting these numbers.

This is what I define as junk science -- literally picking numbers and throwing them into a standard. If this goes into the standard we are going to be in that situation where somebody goes where'd that come from. Why six inches?

That is not good science and engineering. There needs to be a method. But this is not it and not in its current state. Thank you.

MR. POOLE: Thank you. Microphone No. 2,

Dr. Hirschler, please state your name, your affiliation --

DR. HIRSCHLER: I was waiting for Bill Koffel first. Oh, never mind. Marcelo Hirschler, GBH International for the Vinyl Institute and in opposition to the motion.

We've heard a lot of opposition from the HDPE industry. I'm not surprised. I've been testifying at the code hearings time and time again.

And I hear them come time and time again -- we don't need to test these materials. This is not interior finish. If we have to test them we don't want to test them to NFPA 286.

It's too difficult. We probably are going to fail. There's a lot of water in bathrooms. I mean, they're choosing at the last minute time and time again to come to oppose progress.

This is a needed mounting method. If they had some concerns with the specific requirements in the test -- proposed mounting method they had plenty of time to put proposals in, to put comments in, to put input in. Nothing happened until we come to this point.

If they want changes, the change -- they can make a TIA like I was accused in the previous

that the time is to make a TIA. They want a change, make a TIA.

We need a mounting method. We don't have one. This is the best we have right now. This is perfectly acceptable. It's a way of really assessing these materials.

Please oppose the motion and let us have a mounting method for HDPE bathroom partitions in NFPA 286. We need it. Thank you.

MR. POOLE: Thank you, Dr. Hirschler.

In an attempt to hear the for and against side I'm going to go to Microphone No. 3. Please state your name, your affiliation, and whether you're speaking for or against.

MR. SCHENKER: Tim Schenker, Hadrian Partitions, speaking for the motion. A lot of things here. Dr. Hirschler, in all due respect, there is a mounting method. And it's the current standard.

Let me also state I am not -- I'm the manufacturer. I am not opposed to testing. And people are saying that we're coming here saying we don't want to test. We want to test. We're all for safety. We're all for 286.

Let's put in a test and mounting method

that is more accurate to the way partitions are being installed. That's what we're here to do.

And in regard to the timing comment made, totally understand that. However there is a process. And one of the -- the process here is a NITMAM. And that's what we're here to propose.

And we would -- I'd be more than happy to serve on a committee and talk about what the right mounting method is. But the current one that's being -- or the one that's being proposed is not -- it's not valid. It's invalid.

I'm all for testing. Let's find a valid mounting method that we're all in agreement with. And then let's move forward on it. The current or the one that's proposed -- the testing method -- and you heard from several people here. You heard from engineers that have tested.

If you read through -- if anybody takes the time to look at the proposed testing method you literally cannot make heads or tails out of it. It is confusing. There's typos. It's a poorly written and constructed test mounting method.

So I am voting for the motion. And I would encourage everyone to please vote along with me on that. Thank you.

MR. POOLE: Thank you.

Mr. Koffel at microphone number six, state your name, your affiliation, whether you're speaking for or against for the motion for the record, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, consultant to Bobrick, speaking in opposition to the motion. You're hearing a lot of confusing comments here this morning that I can only assume are to try to confuse you.

You heard testimony that, well, we don't put the partition on the ceiling. This mounting method doesn't require you to put the partition on the ceiling unless it's intended to be put on the ceiling.

You're hearing that we can't test to this. People have been testing using this mounting method for years.

And some people who haven't been using this have either used the 286 method, which puts it right on the base wall -- how many partitions are installed that way -- or, as Marcelo said, they've worked with a lab to come up with an alternate mounting method.

This is a work -- a result of one of those

activities as it was used in the testing of the Scranton Product material. So to say you can't do this -- people have been doing it for years.

And again I would encourage you to support the committee. There has been plenty of opportunity for people to address these details before today. And they have chosen not to do so. Thank you.

MR. POOLE: Thank you, Mr. Koffel.

Microphone No. 5, please state your name, affiliation, and whether you're speaking for or against for the record.

MR. DILLON: Scott Dillon with Engineering Systems Incorporated speaking on behalf of Scranton Products.

I agree with Mr. Koffel. Yes, Scranton Products has tested their HDPE panels in accordance with NFPA 286 and passed.

The problem is those tests and the way they were conducted is not representative of what is in the current Section 5.12. It doesn't tell you how to mount things. There are six-inch studs that are required. It doesn't show you how to put them.

You know, we did this working with Scranton Products to come up with a test method that would satisfy some requests to have those products

tested. And they passed.

The problem is that test method did not get implemented into 5.12. It is extremely confusing. And working with the labs and having been a fire test engineer I would not know how to test this.

So you have to work with the labs and they have to make an interpretation. And you don't want to rely on that. The standard needs to be clear exactly what to do. And this is just confusing.

In addition while there are HDPE products that pass this test, there are non-HDPE products that fail this test. So the test methodology in and of itself is improper and incorrect. Thank you.

MR. POOLE: Thank you. Microphone No. 2, please state your name, affiliation, and whether you're speaking for or against for the record.

MR. GETTLEMAN: Thank you, Chair. Alan Gettleman. I'm speaking in opposition against the motion. I just want to raise the point that Section 5.12 is testing the material consistent with the NFPA 286 where the material is just being spaced away from the test room wall to better represent an actual installation.

This is not meant to be a test of an

actual installation. That is a different subject. And the people who are speaking in favor of the motion are trying to, I think, create some confusion here.

We're trying to just -- the test committee is just trying to modify the 286 procedure, which is testing panels wall-to-floor as a test of the panel, not a test of the installation.

So we're just -- the motion is, I think, trying to raise a point that isn't part of the consideration today. Thank you.

MR. POOLE: Thank you. Microphone No. 3, please state your name, affiliation, and whether you're speaking for or against the motion for the record.

MR. SCHENKER: Tim Schenker, Hadrian Manufacturing, speaking for the motion. It's really important to understand that we've tested 286. There is a method. The current 286 is the test method.

I am in agreement that the test method should change. But several people have said -- and the gentleman just before me said we just wanted to make it more like an installation in a restroom -- pulling it six inches from the wall.

I've never been in a restroom where a partition was six inches from the wall or for that matter mounted against the wall, which is what the current standard is.

It does need to change. But let's not have to revisit this issue two or three years down the road. Let's get the test and mounting method correct. That's all I'm asking.

And the method in which the proposed standard is to mount -- again I'll reiterate it. You've heard from several people. You cannot interpret it correctly.

It lends itself to if I go to one independent test lab and say test to this method they'll interpret it however they want to interpret it. Somebody might go to a different independent test lab and everything is going to be different because it is that confusing.

So I please urge everyone to vote in support of this. And again I'll volunteer to sit on a committee to write it and redo the whole thing.

And I understand the timeframe. And a lot of time has been spent already doing this. But let's just get it right. That's all I'm asking for. Thank you.

MR. POOLE: Thank you. Microphone No. 6, please state your name, affiliation, and whether you're speaking for or against the motion for the record, please.

MR. BISH: George Bish speaking for myself. Call the question.

MR. POOLE: There has been a motion to call the question. Do I have a second?

MULTIPLE SPEAKERS: Second.

MR. POOLE: Before we take the vote I note that there are still some people at the microphones, many of which want to speak. Then you can take the vote on call the question first.

To call the question a vote of two-thirds is required for the passage by the association membership. If the motion passes then immediately proceed to the vote on the CAM.

Please hit your vote button. Yes to call the question; no to not call the question. Voting will close in five seconds.

Results are in. We have 188 in favor of calling the question and 11 opposed. The motion passes.

We will now proceed to the motion on the floor. Mr. Parker, would you like to have any final

discussions as the -- from the committee perspective?

MR. PARKER: Thank you, Mr. Poole. I'd just like to state that the committee did follow the NFPA regulations governing the standard development. And I support the actions of the committee. Thank you.

MR. POOLE: Thank you.

Touch the vote button on your device. If you speak and -- want to vote in support touch yes. If you want to vote against touch no. Please record your vote.

Voting will close in five seconds.

The results of the vote are in. 113 in favor in support of the motion and 159 oppose the motion. The motion fails.

Thank you. Are there any final discussion on NFPA 286?

Thank you. Seeing none, that concludes the consideration of all certified amended motions on 286.

We will now move on to the next standard on the agenda, which is NFPA 505 Fire Safety Standard for Powered Industrial Trucks Including Type, Designations, Areas of Use, Conversions,

Maintenance, and Operations.

Good morning, Mr. Crowley. Will you please present on behalf of the technical committee the chair report?

MR. CROWLEY: Thank you, Mr. Poole.

Ladies and gentlemen, the report of the Technical Committee on Industrial Trucks of NFPA 505 Fire Safety Standard for Power -- Powered Industrial Trucks Including Type, Designations, Areas of Use, Conversions, Maintenance, and Operations is presented as found in the first draft and second draft report of the fall 2022 revision cycle.

The technical committee has published a first draft report and a second draft report consisting of revisions to NFPA 505 Fire Safety Standard for Powered Industrial Trucks Including Type, Designations, Area of Use, Conversions, Maintenance, and Operation.

The revisions were submitted by letter ballot of the responsible committee. The report and ballot results can be found at the next tab -- next edition tab of the document information page of the Fire Safety of Powered Industrial Trucks -- they need to shorten this one -- Including Types, Areas of -- Conversion, Maintenance, and Operations at

www.nfpa.org/505next.

With that, I move for the Standards Council issuance of the committee's report on the Fire Safety Standard for Power Industrial Trucks Including Types, Designations, Areas of Use, Conversions, Maintenance, and Operations.

MR. POOLE: Thank you, Mr. Crowley.

Now let's proceed with the discussion on Certified Amended Motion 505-1. Microphone 5?

MR. A. SMITH: Excuse me. Alex Smith for Bruce Swiecicki on behalf of the National Propane Gas Association. I would like to make a motion to reject SR No. 4.

MR. POOLE: Thank you, Mr. Smith.

We have a motion on the floor to reject Second Revision No. 4. Do I hear a second?

UNIDENTIFIED SPEAKER: Second.

MR. POOLE: Thank you. We do have a second. Let's proceed with the discussion.

Mr. Smith, can you please proceed?

MR. A. SMITH: Yes. Alex Smith, National Propane Gas Association on behalf of Bruce Swiecicki. The National Propane Gas Association represents propane equipment manufacturers, propane distributors, regulatory agencies, and propane users

across North America.

SR No. 4 will result in NFPA 505 continuing to place workers in hazardous situations due to the need to disconnect and reconnect non-leaking connections that are protected by gasket, O-ring fittings as well as lifting hazards of full containers ranging from 54 to 80 pounds.

NFPA 58, the Liquified Petroleum Gas Code, does not prohibit the filling of containers on vehicles, including forklifts.

Similar containers are utilized on lawn tractors, architectural equipment, and other engine and vehicle applications, which are filled without restriction while mounted on the vehicle. The filling practice on these vehicles is no different from that of the filling of a forklift.

Forcing an industry sector to disconnect and reconnect connection fittings that are protected by O-ring and gaskets would significantly -- frequently leads to a greater potential for wear and leakage with no identifiable safety benefit.

The retightening of these liquid valve fittings is relying on handgrip strength of the connector within a confined area. This, coupled with wear of gas material, can result in liquid

releasing from the connection point when the container valve is reenergized.

When liquid released rapidly vaporizes and liquid temperature drops to minus 44 degree. At these temperatures hypothermic burns may occur.

Further risk is placed on employees servicing, filling, and replacing forklift cylinders by forcing them to lift filled cylinders back onto the rear of a forklift. Filled forklift cylinders range in weight from 54 to in excess of 80 pounds.

This lifting is outside of the safe ergonomic zone of the average employee. It is our position that no direct safety value is created through the removal of forklift cylinder from a forklift.

All vehicles should be shut off when refueling, eliminating any risk of ignition. And it is safer to fill the container on the forklift as opposed to removing it. Thank you.

MR. POOLE: Thank you. Mr. Crowley, would you like to offer the position of the Technical Committee on Industrial Trucks?

MR. CROWLEY: Yes. Thank you, Mr. Poole. The 2018 edition of NFPA 505 requires that exchangeable or removeable LP gas cylinders be

removed from the truck prior to being filled.

During the current code cycle a first revision was created to revise this mandatory language to permit the refilling of exchangeable removal LP gas cylinders while still attached to the truck.

After receiving several public comments which voiced safety concerns over refilling of the LP cylinders while still mounted on a truck the committee created a Second Revision No. 4, which reverted the minimum requirements back to the 2018 text.

The two revisions resulted in no change to the current text of NFPA 505 and will still require the exchangeable or removeable LP cylinders to be removed from the trucks prior to being refilled.

The technical committee has the second revision ballet number four on ballot with six affirmative votes, zero negative votes, and five ballots not returned.

MR. POOLE: Thank you. With that, we'll open the debate on the motion. Microphone No. 5, please state your name, your affiliation, and whether you're speaking in support or against the motion for the record, please.

MR. WAGNER: Good morning. Christopher Wagner with Amerigas Propane LP speaking in favor of the motion. The greatest risk of release always directly follows disconnection and reconnection of a fitting.

Accidental and uncontrolled release of liquid propane can -- to the environment can pose a significant and catastrophic risk to employees.

Initial risk is posed through the potential risk of liquid or hypothermic burns, direct liquid contact with the skin, followed by the expansion of the released liquid at a rate of 270 to 1, which can migrate out of the area, come in contact with sources of ignition and a resultant flashback.

It is our position that it is safer to fill a propane cylinder on the vehicle which is being serviced as opposed to removing that same container, filling it, and returning it -- having to disconnect and reconnect that connection. Thank you.

MR. POOLE: Thank you. Is there any further discussion on Motion 505-1 to reject Second Revision No. 4?

Mr. Crowley, would you like to offer any

final closing comment?

MR. CROWLEY: No. Have no further comments. Thank you.

MR. POOLE: Thank you. Before we vote let me restate the motion. The motion on the floor is to reject Second Revision No. 4. Touch the vote button. If you touch yes you'll be voting in support of the motion. Or if you touch no you'll be voting against the motion. Please record your vote. Voting will close in five seconds.

The results of the vote are 162 in support of the motion and 75 against the motion. The motion passes. Thank you.

Before I turn over to the next group of certified amending motions to consider for the agenda, I would like to express my sincere thanks and honor to the participants here today for participating in these activities.

It has been my pleasure to act as the presiding officer. And the next presiding officer will be Michael Johnston with the Standards Council. However before we proceed we are going to take a 15-minute break. And we will return at 10:36.

(WHEREUPON, a recess was taken.)

MS. BELLIS: Could everyone please return

to their seats so we can get started?

Thank you.

MR. JOHNSTON: All right. Special thanks to Jack Poole. I appreciate the introduction. As Jack indicated, my name's Mike Johnston. And I have the distinct pleasure of serving as your presiding officer for the certified amending motions on NFPA 4 and NFPA 30A.

So to begin we will now move on the next item on the agenda, which is NFPA 4, the Standard for Integrated Fire Protection and Life Safety System Testing and proceed by calling Certified Amending Motion 4-1. Ms. Kimberly Gruner, would you like to present the chair report, please?

MS. GRUNER: Thank you, Michael Johnston.

Ladies and gentlemen, the report of the Technical Committee on Commissioning and Integrated Testing is presented and is found in the first draft report and second draft report for the annual 2023 cycle of NFPA 4 Standard for Integrated Fire Protection and Life Safety System Testing.

The revisions were submitted to letter ballot of the responsible committee in accordance with the regulations governing the development of NFPA standards.

The reports and ballot results can be found on the next edition tab of the document information page for NFPA 4 at www.nfpa.org/4next. With that reported, I move for the Standards Council issuance of the committee's report on NFPA 4.

MR. JOHNSTON: Thank you, Kimberly.

Let's now proceed with the discussion on Certified Amending Motion 4-1. Microphone 5, please.

MR. KOFFEL: Bill Koffel, Koffel Associates. I move CAM 4-1.

MR. JOHNSTON: Thank you. We have a motion and a second. Microphone 5?

MR. KOFFEL: Bill Koffel, Koffel Associates, speaking in support of the motion. We have no specific client interest in this matter. We do have a number of clients that would be affected by this.

And I'm hoping that you have reviewed what I provided on the website in terms of support for this CAM. And I disclosed those clients at this -- at that time.

I'm also not going to repeat everything that was in that written document. You'll notice that there's a lot of little editorial -- you might

call them nitpicking type things.

Well, that's because this is all new material. Unlike the NFPA 286 discussion where the committee input was very detailed, this was not.

So the first time we really had a chance to address this besides the committee meeting was the committee ballot. And a lot of those things I put in my committee ballot as well.

I would also encourage you to look at the committee ballots of Bob Schifellite and Doug Fisher, who voted against the second revision as well.

I do want to highlight a few things however. The language that's proposed in Second Revision 2 is conflicting with itself throughout the document.

And probably the easiest way to do this is to look at the language if the motion fails because it -- with all the strikeouts it gets confusing. But let me just share with you that all I'm trying to do is take us back to previous edition text.

So if you look at the language of if the motion fails you will see in 1.1.2 it says passive fire protection features are not included.

Then in 1.1.3 it says fire -- passive fire

protection systems are to be. So adjacent paragraphs conflict with themselves.

And then in 1.3.3 we say the standard shall not provide testing requirements for passive fire protection features but 1.1.3 does. So which is it?

I'd also like to move on to some other concerns. There's an inappropriate assumption that has been made with Second Revision 2 which says we're not testing passive features.

And that is that the passive features tested during construction will continue to equal -- be equally effective throughout the useful life of the building.

How many times have you seen something happen post-occupancy that affects a passive fire protection feature? And this assumption is saying that doesn't really happen.

So in summary all we're trying to say is part of this testing of an integrated system is to verify the passive fire protection features. That might be the integrity of the enclosure for a clean agent system.

It might be a smoke barrier that's separating zones for a smoke control system. We

need to make sure that's in place and effective before we actually do the test. Thank you.

MR. JOHNSTON: Thank you, Mr. Koffel.

Kimberly, would you like to offer the technical committee position?

MS. GRUNER: Thank you, Mr. Johnston.

Mr. Koffel seeks to reject Second Revision No. 2, which was added to the standard at the second draft stage after soliciting the public with committee input.

The ballot results for SR2 were out of 36 eligible voters. Thirty voted affirmative. Three voted negative. Two were not returned and one voted to abstain.

In its statement to create a second revision based on three public comments -- public comment two, three, and four -- the committee indicated that the changes provided clarification in order to differentiate which fire protection and life safety components, systems, assemblies, barriers, and other features are to be included in the integrated fire protection and life safety system test and which are not.

Extensive annex material was added to describe typical active integrated systems and other

systems that should be in place as needed for the integrated test as well as passive fire protection features.

MR. JOHNSTON: Thank you. With that, we'll open debate on the motion. Please provide your name, affiliation, and whether you're speaking in support of or in opposition to the motion. Microphone 5, please.

MR. BRACKETT: Thank you, Mr. Chair. Joshua Brackett, Banner Health, representing the healthcare section and in support of the motion.

The purpose of NFPA 4 is to verify the various activities of active and fire protection features that together form an integrated fire protection system when properly tested.

The technical changes in SR2 limit the scope of such testing to certain features of the system and are no longer inclusive. We support Bill and his interpretation associated with this and ask that you support the motion.

MR. JOHNSTON: Thank you. Microphone 2, please.

MR. VICTOR: Terry Victor with Johnson Controls speaking in opposition to the motion. And I appreciate what Mr. Brackett just said because he

used the term interpretation.

And I'm one that is very aggressive in making sure that we correlate our documents with each other. And so I'm coming to you and I'm going to just share a couple of definitions that are pretty critical to this argument.

An active fire protection system by definition is a system that uses moving mechanical or electrical parts to achieve a fire protection goal. That's an active fire protection system.

Has to have movement -- a flow switch, a door closer. There has to be something that moves in order for it to be an active fire protection system.

A passive fire protection system is a component of a building or structure that provides fire protection without any type of system activation or movement. So it's a wall. It's a floor configuration. It's a floor assembly.

It could be a fire door. But when that fire door is in that passive assembly it becomes an active portion of the assembly and it will be tested as part of an NFPA 4 integrated test.

Also in NFPA 3, which is the commissioning document, we have the following paragraphs. In

Chapter 5, Section 4.1 -- 5.4.1.2 it says passive fire protection systems shall be inspected or tested for proper installation including the following -- conformance to drawings and specs, installation in accordance with manufacturer's published instructions, compliance with codes and standards, and correct performance of operable parts.

And then it goes on to say in Section 5.4.1.3 active fire protection systems shall be inspected and tested for proper installation and operation, including completion of acceptance testing and integrated system testing in compliance with NFPA 4.

So if Mr. Koffel's proposal goes through, NFPA 4 will be in direct conflict with NFPA 3. As Chair Gruner stated early, she assigned a task group to look at this language that was part of a committee input. It was out there for public consumption.

As is normal with some of these committee inputs there wasn't a lot of input from the general public. But from committee members we did respond to that committee input.

As she indicated there was a very heavily weighted vote in favor of these changes to delete

the term passive from NFPA 3 -- or I'm sorry, NFPA 4. I'm running out of time. But I'm opposed to this change that Mr. Koffel's proposing.

MR. JOHNSTON: Thank you. Microphone 5, please.

MR. BRACKETT: Thank you, Mr. Chair. Josh Brackett. This time Banner Health representing myself and Banner Health in support of the motion.

As an owner we have preemptively implemented NFPA 4 at several of our buildings to help provide guidance from an actual how do we implement and get education out there around this.

I can tell you as an owner I have personally seen where passive systems had to be tested with the active systems as part of the integrated test.

I will give you one example. We had a building that had multiple kitchen hoods for training and testing during cooking.

And the -- right, wrong, or indifferent -- the AHA interpreted it that it was a smoke controlled system. We were being held to it. And we had to do integrated testing associated with it.

And I'm glad that we did because whether we agree or disagree that the door is an active

component in a passive barrier, when it is in its passive position you can argue it is a passive feature.

When those kitchen hoods activated you could not physically open the doors to egress. We could not have caught this had we not done integrated testing. So I implore all listening that we support this motion.

MR. JOHNSTON: Thank you. Microphone 1, please.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for myself. This is the first time I've heard that a door -- a fire door -- is an active system. I used to be chair of the NFPA Glossary and Terminology Committee.

And if we passed a definition like that then we urgently have to make something to change that because a door is not an active system. It is something that is there to prevent the passage of flame or smoke from compartment to another.

The need to integrate passive fire protection together with active fire protection is essential. The concept that active -- that passive fire protection can never disintegrate or can never erode is totally false.

Yesterday I remember hearing a presentation of all the fire stops and how fire stops can change with time. Fire stops can change because someone puts a hole next to them. Fire stops are clearly a passive fire protection.

We absolutely need to make sure that we integrate fire -- passive fire protection within the integrated systems. Please support the motion. Thank you.

MR. JOHNSTON: Thank you. Microphone 5, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, in support of the motion. Just addressing a few items. You hear the comment that there's some extensive annex material. And that's correct. That's also where some of the problems are.

So for example, in that annex it tells me that windows that are part of a smoke control system are to be part of an integrated test.

Windows that are part of the enclosure for a clean agent are not required to be part of the test. Now it doesn't specifically say that. But the point is it only says windows that are part of a smoke control system.

The membership of NFPA three years ago in the previous edition of NFPA 4 supported a very similar CAM that I submitted to send this back to committee and ask them to readdress the issue.

And I do give the committee credit because the committee input basically said we're going to take passive out in total. And they didn't do that. So they were somewhat responsive to our arguments in the past.

I just don't think we're there yet. This is not a clarification. This is a significant technical change to say that there are certain things that we do not have to evaluate that are part -- as part of an integrated test, plan for a fire and life safety system. I encourage you to support the motion.

MR. JOHNSTON: Thank you. Microphone 2, please.

MR. VICTOR: Jerry Victor with Johnson Controls speaking in opposition to the motion. I want to make something clear that, you know, Bill's sort of alluding to.

Mr. Koffel was alluding to the fact that we don't want to consider the integrity of a passive fire protection feature in a building. We do. Just

like we want to make sure that every system that's going to be tested as part of the integrated test is working properly.

The standard requires that prior to the integrated test that all of the systems are tested to make sure that they're in compliance with the installation standards. That includes any passive systems.

Mr. Koffel alluded to the fact that there was confusing -- what he considered to be confusing language because we say that the passive fire protection systems should not be included in the integrated test.

That's true. And then we included verbiage that says for passive fire protection systems make sure before the integrated test that they have been inspected and tested for integrity so that when you perform the integrated test you don't have failures.

Every system that's included in the integrated test is to be tested end-to-end. So how do you test once you start initiating flow switches, once you start initiating pull stations and smoke detectors?

You know, how are you then testing the

integrity of a passive wall configuration or floor configuration? You're not.

All of those configurations should have already been inspected, should have already been made sure that there are no penetrations that need to be sealed, to make sure there are no seals on the doors that need to be corrected.

That all needs to be done prior to the integrated test just like every system that's involved in the integrated test has to be tested ahead of time.

It's all a part of preparation before the actual integrated test is being performed. So the language is not confusing.

It points people back to NFPA 3 when it says if you're not doing -- you know, we don't want to have to test those passive systems in NFPA 4. That's not what NFPA 4 is all about.

But when you have passive systems, go back to NFPA 3, look at how those systems are to be inspected and tested ahead of time.

And if that's -- if there's no guidance in NFPA 3 you need to go to the manufacturer's recommendations to make sure that those components are -- the integrity of those components is where it

needs to be for the integrated test.

So I think we've added a lot of good language. Mr. Koffel mentioned the fact that there's something in the annex about the windows. Those are examples.

It was not an inclusive list of things that are being considered passive or active systems. It's just a -- verbiages such as. So it's not all-inclusive. And there are other components I'm sure that we do not have in that list. Thank you very much.

MR. JOHNSTON: Thank you. Microphone 3, please.

MR. LIPSTER: Thank you, Mr. Chair. I'm Steve Lipster speaking for myself. And I call the question.

MR. JOHNSTON: Thank you. There is a motion on the floor to call the question. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. JOHNSTON: Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. JOHNSTON: All right. Thank you. We do have a second. In order to vote on this motion please scroll down to the bottom of the device for

your vote.

If you wish to vote in support of the motion touch yes. If you wish to vote in -- against the motion vote no. And this vote is on calling the question. Five seconds.

The voting is closed. The motion passes on calling the question.

Before we vote let me restate the motion. The motion on the floor is to reject Second Revision No. 2. If you wish to vote in support of the motion please touch yes. If you wish to vote against the motion please touch no.

Please record your vote now. The voting will close in five seconds.

The voting is closed. The motion passes. Thank you.

Seeing no other -- nobody else at the microphones, this concludes the consideration of all certified amended motions on NFPA 4.

We will now move on to the next standard on the agenda NFPA 30A -- the Code for Motor Fuel Dispensing Facilities and Repair Garages.

Thank you, Kimberly.

Mr. Laurence, will you present the chair report, please.

MR. LAURENCE: Thank you, Mr. Johnston.

Ladies and gentlemen, the report of the Technical Committee on Automotive and Marine Service Stations of the Code for Motor Fuel Dispensing Facilities and Repair Garages is presented as found in the first draft report and the second draft report for the 2023 revision cycle.

The Technical Committee on Automotive and Marine Service Stations has published a first draft report and a second draft report consisting of revisions to the code for Motor Fuel Dispensing Facilities and Repair Garages.

The revisions were submitted by letter ballot of the responsible committee. The reports and ballot results can be found at the next edition tab of the document information page for the Code for Motor Fuel Dispensing Facilities and Repair Garages at www.nfpa.org/30Anext.

With that reported, I move for Standards Council issuance of the committee's report on the Code for Motor Fuel Dispensing Facilities and Repair Garages.

MR. JOHNSTON: Thank you, Ronald.

Let's now proceed with the discussion on Certified Amending Motion 30 dash -- 30A-30.

Microphone 5, please.

MR. HOLLAND: Thank you, sir. Bryan Holland, National Electrical Manufacturers Association. Motion to accept public comment number 34.

MR. JOHNSTON: There's a motion to accept comment number 34. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. JOHNSTON: Okay. We do have a second. Please proceed with the discussion on the motion.

MR. HOLLAND: Thank you, sir. Bryan Holland, National Electrical Manufacturers Association speaking in support of the motion.

First and foremost we encourage the membership to review NEMA's comment number 6 to the failed TIA log number 1621 that attempted to add this exact language to the current edition of 30A.

We would also point you to the substantiation NEMA's public comment number 34 to First Revision No. 31 and the published motion substantiation to CAM 30A-30.

Please let me make it clear that NEMA believes the committee had the very best of intentions when they created Chapter 15. However good intentions do not always result in good code

writing.

The fact of the matter is that electrical vehicle power transfer systems installed and operated in compliance with Chapter 8 of 30A along with Articles 511, 514, and 625 of the NAC are essentially free from hazard and in reality even more safe than other activities that typically occur at a fuel-dispensing facility.

The very act of dispensing fuel, jumpstarting a vehicle, charging a vehicle's battery, inflating a flat tire, or even idling a vehicle with a hot muffler under the station canopy are exponentially more risky conditions.

At this very moment there are likely hundreds if not thousands of EVs being charged at gas stations somewhere in the US just like yesterday, just like the day before, and for many years now.

Not a single incident of shock, electrocution, fire, arc flash, or explosion as a result of EV charging has ever been reported at a gas station. Not one.

Second Revision No. 8 is overly restrictive, discriminates against one class of electrical equipment, and really not within scope of

the code.

We encourage the NFPA membership to vote in support of NEMA's public comment number 34 that deletes all the unsubstantiated, unnecessary, and unenforceable requirements of the code.

We further encourage the committee and NFPA to assemble a working group made up of members of the 30A committee, NEC code making panels 12 and 14, along with other interested parties to determine if additional safety criteria is needed for EV charging at gas stations and more importantly exactly what code those requirements should be included in.

We also ask the NFPA committee to include more electrical professionals on the TC if matters associated with the premises' water system will be a focus in future editions of the code.

NEMA appreciates the members' time and consideration of this CAM. Please vote yes to support this effort. In doing so this will allow Charge Point to withdraw all the remaining 30A CAMs as they address the same issues but on a section-by-section basis. Thank you.

MR. JOHNSTON: Thank you. Mr. Laurence, would you like to offer the committee's position?

MR. LAURENCE: Yes. Thank you. The committee does not agree that Chapter 8 of 30A and Articles 511, 514, and 625 of NFPA 70 adequately address EV charging at a motor fuel dispensing facility.

Existing codes only address the EV power transfer equipment -- not the EV or the area where the activities associated with EV charging take place.

EV power transfer systems are significantly higher power units that are part of a fueling activity, require interaction by a driver to initiate and complete a power transfer.

Further none of the codes identified address EV charging activity or occurrence of temporary hazards, spills, releases associated with flammable liquids and gases -- only the installation of EV power transfer systems.

While NEMA states they're not aware of any single reported injury, death, or loss of property as a result of shock, electrocution, fire, arc flash due to a hazard arising with the installation or use of electric vehicle power transfer systems at these facilities, incidences of lithium battery igniting during charging events or just sitting idle have

been reported and have been associated with battery recalls to repair or replace defective batteries.

Further uses and misuse of an EV in the power transfer system over time could affect the performance of this equipment, increase potential ignition fire risks associated with vehicle charging.

In addition, spills and releases from liquid fueling equipment can impact the charging area, placing a facility driver, other patrons, and vehicles at risk.

Specific requirements for EV charging in 15.2 are appropriate to provide definitions of key terms so users understand the requirements of the chapter.

The EV power transfer systems described in NFPA 70, Article 625 was added in response to comments. However the remaining definitions are important to the understanding of the requirements for EV charging.

Definitions are extracted from NFPA 70 and NFPA 855 with the exception of the EV charging area, which defines the area to be outside the hazard classified areas; and the tank vehicle, which is defined to include both a cargo-mounted tank and

tractor and semi-trailer.

Further the definition of EV charging area is essential to the identification of the EV charging area for purposes of the hazard areas.

Requirements establishing hazard classified areas address both the permanent hazard associated with the dispenser and temporary hazard -- spills and releases -- associated with dispensing and transfer of flammable and combustible substances.

While hazardous areas are defined in Chapter 8 of this document, the proposed hazardous areas restrict EV charging activities within the hazard classified areas regardless of the height of the EV power transfer system and connection to the EV.

ESS are being installed as standalone equipment as part of control equipment for the EV power transfer systems. Therefore reference to ESS has been retained for purposes of the hazard areas and other requirements to the proposed chapter.

Developing charging area design requirements to minimize movement through the area by vehicles other than those intending to charge is consistent with the requirements of Section 6.3.7.

Specific emergency shutoff requirements are appropriate because while the EV power transfer system has breakers and shutoff switches and control panels, an emergency stop provides an easy to locate and single-use location for a person charging a vehicle to ensure the power has been disconnected.

MR. JOHNSTON: Thank you, Mr. Laurence.

With that, we will open the debate on the motion. Please provide your name, affiliation, and whether you're speaking in support of or against the motion. Microphone 2, please.

MR. HAWTHORNE: Thank you. My name is Ed Hawthorne and I'm representing the American Petroleum Institute. And I'm also representing the Newark Texas Fire Department.

I'm speaking against this motion and in fact all the series of motions attempting to remove Chapter 15 or parts of Chapter 15.

I'd like to suggest that the NFPA standards process that most of the people in this are part of is the gold standard of developing standards. It involved very balanced participation as its cornerstone, a very detailed response to input, and openness in deliberation.

In the case of 30A Chapter 15 the

technical committee and the task group has been working on this project for over four years since 2019.

Extensive interaction has occurred between the task group and the technical committee and the public and the people that have brought these CAMs forward.

In addition to the normal first draft, second draft process, special meetings were held with the people that have brought these CAMs forward in an attempt to get the best possible information and the best possible Chapter 15. And extensive changes were made.

Forty-three technical committee members voted on this. Thirty-three of them are voting members. And overwhelmingly it was passed.

This is the way we develop standards in NFPA. And all of us in this room have participated in this process. And to process these CAMs would be different than our normal process.

In addition to this several technical issues have been raised in the CAMs. Virtually all of these technical issues have previously been raised in draft one and draft two and dealt with. And changes have made. That is the process. And we

would like to suggest that we not change the process using the CAM.

Finally as a fire service person I think we all recognize that the fire service is struggling to deal with EV and how to deal with batteries, storage units, and various different types of EVs.

This week New York City saw a three-alarm fire that resulted in four deaths as a result of EV fire. We need these kinds of tools in our prevention and response capability.

And I'd like to strongly urge that you not accept this removal of Chapter 15 in its many forms in the CAMs that you're going to talk about. Thank you very much.

MR. JOHNSTON: Thank you. Microphone 3, please.

MR. BILL O'DONNELL: My name is Bill O'Donnell, Senior Director of Retail Fuels and Business Development for Wawa, Inc. And I am speaking for the NEMA CAM.

Wawa's a regional convenience store company with over a thousand stores and operates -- owns and operates all of those stores in Pennsylvania, New Jersey, Delaware, Maryland, Virginia, and Florida.

To date we host EV charging at 139 locations with 1,155 total charging positions. We have safely hosted over five million charges since our first store went live in 2017 with no significant incidents.

Today we have stores that have EV charging and no fossil fueling. But most of our stores provide both transportation energies fuels for our customers.

Our business operates in one of the most highly-regulated industries in the United States due to the nature of the products we sell. Approvals in some states average six years.

Fuel retailers are interested in being relevant and want to be there for our customers. It's in our interest to provide charging options to the motoring public in a safe manner.

The conversion of vehicle transportation from the molecule to the electron is dependent upon a vast network of convenient charging locations.

Our industry has experience with EV charging both on our sites in the US and abroad. I've been to Norway. I've talked with customers that have issued with -- while charging their cars in the very early days of EV charging.

These types of issues have been resolved by EV manufacturers and EV charging companies. And these customers still own EVs today.

As mentioned, our industry is not aware of a single injury or death due to a fire resulting from an EV charger at a gas station or fuel motor outlet. This is due to the existing fire code requirements in NFPA 70 that govern the installation of electrical equipment.

We have no interest in exposure to unnecessary fire risk. We should not be penalized and treated differently than other commercial sites with substantial fire risk simply because we sell electric -- liquid fuels with electric-driven pumps.

The proposed 30A requirements would do that and will outright prevent businesses like Wawa from offering EV charging at our locations.

Our goal is to provide EV charging like fossil fueling where customers will be able to pull through, charge their vehicles, and drive on. Perhaps in the future we'll be replacing gasoline dispensers under our existing canopies.

We support this CAM filed by NEMA Charge Point to cite the relevant portions of existing electrical code rather than write new, unnecessary,

and duplicative requirements. For these reasons please vote yes. Thank you.

MR. JOHNSTON: Thank you. Microphone 5, please. And as reminder, please state your name, affiliation, and whether you're speaking in support of or against the motion.

MR. STONE: Thank you, Mr. Chair. Mike Stone with NEMA speaking in favor of the motion. I'd like to point out some of the effects that the proposed Chapter 15 language would have on EV charging installations.

There is what's called a class one division two area that extends in a 20-foot radius from gasoline dispensers horizontally.

And then 18 inches above that class two -- excuse me, class one division two location that extends 18 inches above that radius.

So above 18 inches -- that's an unclassified location. And it doesn't have any special restrictions on electrical equipment per the NEC.

Other onsite electrical equipment such as ice machines and tire inflators -- they're located outside that 20-foot zone.

The new NFPA 30A Chapter 15 defines the

electric vehicle charging area as the length of the output cable from the EV charger, which are typically 25 feet long, and the EV connectors at the end of that cable.

And that electric vehicle charging area also includes the length of the electric vehicle itself. So if you add all those together you have the 25-foot cable and you have -- if you assume a 15-foot electric vehicle length, that's 40 feet. And then you have the 20-foot radius of the class one division two area.

That would mean that EV charger itself would have to be installed 60 plus feet from any gasoline dispenser. And this would essentially prevent EV charging equipment from being installed on many smaller sites such as convenience stores.

If the EV PTE were really a hazard being installed in proximity to gasoline dispensers then this might be justified. But it's not a hazard.

And the output cable, the 25-foot cable, is different than a standard extension cord in that it's deenergized until the connector is inserted into the EV to charge.

When that happens there's a handshake that occurs. And that's when the cable is energized. So

there's no arc where it gets plugged into the EV. And likewise there's no arc that occurs when it's unplugged either.

The charging ports are located above that 18-inch extent of the class one division two area. And there also are extra hard usage cables, which is a defined term and it's an allowable wiring method to be used in a class one division two location.

So these new provisions are unnecessary, unsubstantiated, and would result in the inability to install necessary EV infrastructure in many thousands of locations. We urge you to vote in favor of this CAM. Thank you.

MR. JOHNSTON: Thank you. Microphone 1, please.

MR. CHEONG: Thank you, Mr. Chair. Kevin Cheong, Charge Point, supporting the motion. Further to my presentation yesterday, I want to point out that the NFPA Research Foundation published four reports in 2020 on one, vehicle fires; two, service or gas station fires; three, fire safety challenges of green buildings and attributes; and four, modern vehicle hazards in parking structures and vehicle carriers.

There was follow-up article entitled Fire

Safety for Electric Vehicles and Other Modern Vehicles in Parking Structures in NFPA Today on November 28, 2022.

While they indicate that modern vehicles are problematic, it's mostly due to the amount of plastic and other combustibles in modern vehicles -- not EV batteries or hydrogen tanks. They also agree that EVs are less likely to catch fire than traditionally fueled vehicles.

Other analysis by NHTSA, NTSB, the insurance industry, media, and government-funded research has concluded EVs are significantly less likely to catch fire but battery fires are tough to put out. Others are already researching firefighting best practice.

Researchers have concluded that none of the confirmed EV fires could be directly attributed to fast charging.

In terms of power, peak battery discharge power and regenerative breaking power almost always exceed the maximum charging power possible or encountered so charging power arguments are invalid.

Since the EV charging area will always be outside the hazardous area because such equipment isn't listed for hazardous locations EVs are far

less -- not more -- likely to ignite flammable liquids at service stations than an ice or hybrid refueling within the hazardous area immediately adjacent a dispenser.

I should point out this TC requested the service station report update. And due to the regs that indicate TC activities this should have been based on that report. That report did not justify this action.

As NEMA has pointed out, it is true. If this motion passes it'll save all of us a good hour and a half today. And I encourage the membership to accept it because I don't want to talk that long. Thank you.

MR. JOHNSTON: Thank you. Microphone 2, please.

MR. HAWTHORNE: Yes. Ed Hawthorne, American Petroleum Institute and Newark Texas Fire Department. I'm sorry that we may talk longer than we wanted on this issue.

The 30A Committee has spent four years working on this issue trying to get it right. And I think they have gotten it right. I think that we should trust that work and -- instead of 30 minutes of technical review -- and vote down this motion.

Thank you very much.

MR. JOHNSTON: Thank you, Microphone 2.

Microphone 5, please.

MR. DOMITROVICH: Thank you, Mr. Chairman. My name is Thomas Domitrovich with Eaton speaking on behalf of the electrical section of NFPA as their official representative and speaking for the motion.

The electrical section met on Monday of this week. During the business meeting the members reviewed this certified amending motion, CAM 30A-30, and voted to support the motion on the floor. Ladies and gentlemen, I urge you to vote for this motion. Thank you very much.

MR. JOHNSTON: All right. Thank you. Microphone 2, please.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for myself and against the motion. I was waiting for someone else to speak because I've been hearing the supporters of the motion saying that electric vehicles don't cause a problem. Electric vehicle battery fires are not -- are okay. They never happen.

And yet we see events all the time. In New York City there have been more and more events. I publish a news bulletin that almost every month I

have to put something in there about some explosion or some fire that happened with an electric vehicle. And it could be a battery.

If this motion passes these type of charging or electric vehicles will not be regulated at all. Please oppose the motion. Thank you.

MR. JOHNSTON: Thank you, Microphone 2.

Microphone 3, please.

MR. BRADLEY: Good morning. Sorry. Keith Bradley. I'm working with Electrify America. We are the largest open network of fast DC chargers in the country.

I want to talk -- I'm speaking for the motion. And I want to talk first about the process. I've heard complaints that voting for this motion would somehow derail the process.

And I respectfully disagree. This is the process. It's a certified amending motion. Everything's been done properly. This is how it works. You all now have the opportunity to decide.

Mr. Hawthorne -- I think I got his name right -- pointed out that this has gone on for four years. You have also heard that the 30A revision has -- without the motion will effectively mean that the vast majority of fueling stations cannot have

chargers at them.

That is a very large impact. That is something that should take time, that should take deliberation. So it is entirely appropriate that it's taken four years and we're still thinking about it and that you're being asked to make this difficult decision today.

We just heard that with this motion charging will be unregulated. Respectfully, that's not correct. There is Standard 70 that regulates quite restrictively the equipment itself -- just as there are many regulations and standards about liquid fueling equipment.

What we hear about with respect to fires -- I mean, I actually -- so I didn't -- I don't know about the fire in New York.

I just looked this up on my phone while we were sitting here. And the most recent thing I found about is a fire with an electric bike that somebody was charging in their apartment.

Yes; people use improperly-installed equipment in their apartments. That is not the question that is before us today. We are talking about properly installed, properly designed, UL certified equipment that is designed to be safe.

And you've heard about the ways in which it is safe.

Yes; people can misuse their cars. They can also misuse liquid-fueled cars. They also sometimes smoke at gas stations. They should not.

The assertion has been made that electric vehicle charging can pose risks. I submit to you that is also not the question. Liquid-fueled vehicles pose risks.

I have not heard anything here or seen in the reports anything that suggests that electric vehicle charging poses greater risks as they are installed today in many gas stations around the country -- that it poses any greater risks than the liquid fueling that goes on. Thank you. I urge you to vote for the motion.

MR. JOHNSTON: Thank you. Microphone 1, please.

MS. FRANCIS: Thank you. Christina Francis, fire protection engineer, and with Tesla -- support of the motion.

As you all may know or not, Tesla's mission is to accelerate the transition to sustainable energy through the development of all electric vehicles and clean energy products.

We were founded in 2003. And we have

delivered more than two million electric vehicles. And I say not that to say how many electrical vehicles we have but how many we have out there and how long that this has been going on with EVs.

We founded our fast-charging network back in 2012. It's over ten years ago of charging that has been completed.

We have 45,000 super chargers currently in operation globally and 20,000 of those are in the US. They are located in retail locations, convenience stores, restaurants -- anywhere that we can support our charging network.

We have over -- globally we have 1.5 million charging sessions per week at our super charging network with really no -- with no incident data to support the restrictions of Chapter 15.

I am fully in support in what NEMA has stated in regards to their position. Also I am a member now of 30A. I joined during second draft.

So when we were talking earlier in regards to the drafts being overwhelmingly supported, I am the only EV charging representative currently on the 30A Committee. I do appreciate the work that the committee has done. But I do support what NEMA is doing.

And also in regards to some of the other conversations today, we need to be very careful when we talk about incidents regarding batteries in cars and making sure that we are talking about them in the right bucket.

We are not talking e-mobility. We are not talking e-scooters. We're talking about EV charging in EVs in a very highly regulated and listed community.

Also Tesla is very committed to firefighter safety. We have on our tesla.com/firstresponders all of our emergency response guides, including super charging.

So if a fire service representative needs to know what to do in responding to any charging location of ours they can go there and properly address it and be safe. Thank you all for your time.

MR. JOHNSTON: Thank you. Microphone 6, please.

MR. DAGENAIS: Thank you, Mr. Chair. Dave Dagenais speaking on behalf of myself. And I call the question.

UNIDENTIFIED SPEAKER: Second.

MR. JOHNSTON: Okay. There's a motion on

the floor to call the question. Is there a second?

MULTIPLE SPEAKERS: Second.

MR. JOHNSTON: Okay. We do have a second. In order to vote on this motion please scroll down to the bottom of your device.

To vote on calling the question, if you're in support of the motion please touch yes. If you wish to vote against the motion please touch no. Please record your vote. Five seconds.

The voting is closed. The motion passes. 247 for, 28 against. The question has been called. We will now move to the vote on Certified Amending Motion 30A-30.

If you wish to vote yes in support of the motion please touch yes. If you wish to vote against the motion please touch no. Please record your vote now. Five seconds.

The voting is closed. The motion passes. The count is 178 for and 89 against.

All right. Standby for just a second.

All right. Thank you. The motion passed so the following certified amending motions cannot be moved because of duplicate parts in 30A-30 already successful -- 30A-5, 30A13, 30A-22, 30A-23, 30A-10.

There are four that can be moved -- 30A-24, 30A8, 30A-15, and 30A-14.

So now let's proceed to the discussion on Certified Amending Motion 30A-5. Microphone 5, please.

MR. CHEONG: Thank you, Mr. Chair. Kevin Cheong, Charge Point. I'd like to withdraw the remaining four motions. Thank you. And I'd like to thank the membership as well.

MR. JOHNSTON: Okay. There's a motion to withdraw the remaining motions.

UNIDENTIFIED SPEAKER: Second.

MR. JOHNSTON: And a second. All right. We have a motion to withdraw 30A-24, 30A-8, 30A-15, and 30A-14 and a second. We can move to the vote. No vote on that. I'm sorry.

MS. BELLIS: That's okay.

MR. JOHNSTON: Oh, that's right. Thank you. The proceeding motions appeared on the agenda. However the authorized maker of the motion or designated representative has notified NFPA that this motion will not be pursued.

Therefore in accordance with NFPA Rules Section 2.7 the motion cannot be considered by the assembly and is removed from the agenda. We will

now move on to the next motion.

Before we go there I need to read the concluding statement. Thank you. That concludes the consideration of the certified amending motions on 30A.

Before I turn the podium over to the next group of certified amending motions I would like to express my thanks to you, the participants here today. It's been my pleasure to act as presiding officer.

And now I'd like to introduce Jeffrey Foisel, Standards Council member, and turn over the duties as presiding officer to him to continue.

Thank you, Mr. Long.

MR. LONG: Thank you.

MR. JOHNSTON: Thank you.

MR. FOISEL: Thank you, Michael.

So we will now move to the next item on our agenda, which is NFPA 99 Healthcare Facilities Code.

Mr. William Koffel, will you please present the chair report?

MR. KOFFEL: Thank you, Mr. Foisel.

The report of the Correlating Committee on Healthcare Facilities on NFPA 99 Healthcare

Facilities Code is presented as found in the first draft report and second draft report for the annual 2023 revision cycle.

The correlating committee has published a first draft report and a second draft report consisting of revisions to NFPA 99. The revisions were submitted to letter ballot of the responsible committees.

The reports and ballot results can be found at the next edition tab of the document information page for NFPA 99 at www.nfpa.org/99next. With that reported, I move to the Standards Council issuance of the committee's report on NFPA 99.

MR. FOISEL: Thank you. We will now proceed by calling the combined certified amending motion for NFPA 99, 99-11 through 99-44. For a full list of the certified amending motions please reference the Motion Committee 2023 Annual Report, Pages 6 and 7.

Okay. Certified Amending Motion 99-11 through 44 appeared on our agenda. However no authorized individual has signed in nor approached the microphone to make the motion.

Seeing that the maker of the motion nor an identified designated representative has approached

to make the motion, in accordance with NFPA rules the motion may not be considered by the assembly as a certified amending motion and is removed from the agenda.

We will now move on to the next motion. Let's now proceed with the discussion of Certified Amending Motion 99-47. Microphone 3?

MR. NEAL: Hello. My name is Chris Neal and I represent Restore Hyper Wellness. I move CAM 99-47.

MR. FOISEL: Thank you. There is a motion on the floor to accept an identifiable part of public comment 103. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please proceed with the discussion on the motion.

MR. NEAL: Thank you. Again I'm Chris Neal representing Restore Hyper Wellness in support of CAM 9947.

This CAM is proposed in order to address the safeguarding requirements specific to low pressure, soft-sided, mild hyperbaric chambers within NFPA 99.

The motion is submitted to designate the appropriate risk category -- Category 4 -- for low

pressure, soft-sided chambers scaled to the risks that they present with the intention of garnering the committee's interest and involvement in population of the requisite requirements.

The primary consideration is to draft and adopt language that will ensure the safe use of these devices, which are already in operation in virtually every state.

This will result in consistent adoption, adherence, and enforcement of appropriate standards for low pressure, soft-sided chambers, making this section of the hyperbaric industry safer for first responders, staff, and occupants.

There are several important reasons for this proposed change as follows. Number one, currently in the United States there are approximately 20,000 low pressure, soft-shell hyperbaric chambers in operation. The --

Number two, the existing language in NFPA 99-14 is broad and lacks clarity and specificity for various applications.

Number three, there are many standards in the existing NFPA 99-14 code that do not reasonably apply to low pressure, soft-shell chambers like ventilation design and textile requirements.

Number four, there are considerations with the operation of low pressure, soft-shell chambers that the existing NFPA 99-14 code does not contemplate such as occupant self-egress and occupants who may be asleep.

Number five, the lack of clear guidance leads to more confusion and consequently creates a vacuum that is often filled with inaccurate, sensational, and misleading information.

The proposed creation of a new category begins to address the above-mentioned deficiencies and granularity in the code.

The proposed changes should also take into consideration the latest advances in soft-shell chamber engineering design standards applied by US manufacturers of these commonly-used devices which have been in service for decades.

For years the NFPA 99 Chapter 14 code has long been applied broadly to all Class B monoplace chambers despite the distinct differences in chamber pressures, oxygen concentrations, chamber construction types, operations, et cetera that exist in the industry today.

The current code edition suggests that the risks of highly pressurized 30 PSIG hard-shell

chamber being filled with 100 percent enriched oxygen are equivalent to the risks of a low pressure, 4 PSIG soft-wall chamber being inflated with air that allows for self-evacuation.

This ignores the key principles of assessing fire and life safety hazards in thresholds according to the appropriate risks.

These devices are novel and evolutionary in the hyperbaric industry. And it is time that the codes address these differences. Thank you.

MR. FOISEL: Mr. Koffel, would you like to offer the Correlating Committee on Healthcare Facilities' position?

MR. KOFFEL: Thank you. Under its responsibilities for scopes within this correlating committee's purview the correlating committee reviewed the technical committee actions on Chapter 14.

The correlating committee found no conflicts or correlation issue in the revisions that resulted in the 2024 NFPA 99 development process.

At this time I would normally defer to Milash Puchowski who is the chair of the technical committee that is responsible for Chapter 14. Unfortunately, Mr. Puchowski is not able to be with

us today so I will be presenting his comments in opposition to this motion.

The motion seeks to accept an identifiable part of public comment 103, which was rejected but held by the technical committee on the basis the subject being deemed to be new material in accordance with Paragraph 4.4.2 of the regulations governing the development of NFPA standards which states public comments must be related to material that has received public review either through the submission of public input, committee input, or correlating input or through the first revision.

The technical committee may reject but hold any public comment that introduces new material or that has not had adequate public review.

The submitter of public comment number 103 indicated that the related first draft item was First Revision No. 99-7, which addressed primary and secondary pressure relief devices in hyperbaric chambers.

First Revision No. 99-7 was unrelated to the concept of mild hyperbaric therapy, which is a concept introduced by public comment number 103.

The public comment defines a concept of mild hyperbaric therapy as Category 4, which is

currently reserved in the hyperbaric facility chapter of NFPA 99.

The reserved notation indicates that currently no definition of requirements exist for Chapter 4 hyperbaric therapy. While the public comment would define a Category 4 hyperbaric facility, there are no requirements for them that have been provided.

The technical committee took no position with respect to the technical content of public comment number one. It will be automatically entered as a public input during the next revision cycle. It was rejected but held strictly based on the procedures specified in the regulations.

MR. FOISEL: Thank you. With that, we will open debate on the motion. Please provide your name, affiliation, and whether you are speaking for or against the motion. Microphone 6, please.

MR. PETERKIN: Yes, Jim Peterkin with TLC Engineering Solutions speaking on behalf of the healthcare section in opposition to the motion.

The healthcare section met at their annual business meeting and voted unanimously to oppose this motion for the reasons Mr. Koffel has already outlined.

This is new material. It's deemed new material. It doesn't have requirements. It just needs more work and they can -- the committee can do that at the next cycle. Thank you very much.

MR. FOISEL: Okay. Microphone 4, please.

MR. BELL: Jim Bell representing Think Engineering. And I'm in opposition of the motion. I'm in support of the technical committee's actions. It came in as new material. We rejected but held. I should say I'm on the committee but I'm here representing my employer. I won't talk to that.

But I do want to mention that in the substantiation for this motion there's an inaccurate statement where the ASME has changed their scope or some language like that.

But the scope of the ASME for pressure vessels for human occupancy has not changed. And there is a process for changing that just as there is a process in NFPA for new material. So I would encourage the membership to vote against this motion.

MR. FOISEL: Microphone 4, please.

MR. DAGENAIS: Thank you, Mr. Chair. Dave Dagenais speaking on behalf of myself. I am a member of the correlating committee of NFPA 99

although I am not speaking on behalf of the committee.

But I truly believe that the technical committee did the right thing. There has not been enough technical analysis of this.

And as a correlating committee member I have not had an opportunity to validate this does not have any correlating issues with the rest of the document. So I encourage the membership to vote against this.

MR. FOISEL: Microphone 4, please.

MR. GUSTAFSON: My name is Richard Gustafson. I'm a registered nurse. I'm a certified hyperbaric nurse clinician. I've been in the field since 1994.

As mentioned by the gentleman from Restore, there's 20,000 of these chambers out there. I'm voting against -- actually it should say, yeah, against the motion.

There's 20,000 of these chambers out there. They are located in storefronts and in homes. I know of at least two incidents recently within the last ten years that involved non-PVHO NFPA-approved chambers where a death or serious injury occurred.

We need more time to categorize these chambers. And we need the cooperation of the vendors who in my experience, my personal experience, they have refused to provide information about their safety standards and operations currently in practice.

MR. FOISEL: Microphone 2, please.

MR. ARTISONE: Hello, my name is Corey Artisone. I'm representing OxyHealth. We are in support of this motion. We have over 17,000 of these soft-shell units in place in the marketplace worldwide.

We have zero catastrophic issues with our chambers. We have been in business 26 years. We are fully open to support and help any testing that is a need for this task. Thank you.

MR. FOISEL: Is there any further discussion on Motion 99-47 to accept an identifiable part of public comment number 103?

Seeing none -- oh, sorry. Microphone 4, please.

MR. BELL: Hi. Jim Bell of Think Engineering. Just to comment back to there's been no --

MR. FOISEL: Are you for or against the

motion?

MR. BELL: I'm opposing the motion. I'm not saying anything about OxyHealth or any particular manufacturer. But there have been reported injuries and fatalities with these types of chambers.

So it's not a benign thing. And there's just not enough information. We haven't had time to study this. This motion is coming in as -- at the wrong time. We need time to evaluate this.

MR. FOISEL: Thank you.

Okay. Is there any further further discussion on Motion 99-47 to accept an identifiable part of public comment number 103?

Okay. Seeing none, Mr. Koffel, would you like an opportunity for any final comments?

MR. KOFFEL: Nothing further, sir.

MR. FOISEL: Thank you. Before we vote let me restate the motion. The motion on the floor is to accept an identifiable part of public comment number 103.

To vote touch the vote button. If you wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on

screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. The results of the vote are in -- 17 votes in support of the motion and recommend the text on screen one, 215 votes against the motion and recommend the text on screen two. The motion has failed.

Is there any further discussion on NFPA 99?

Okay. Thank you. That concludes the consideration of all certified amending motions on NFPA 99.

We will now move on to the next standard in the agenda -- NFPA 101 Life Safety Code.

Mr. Carson, will you please present the chair report for NFPA 101?

MR. CARSON: Thank you, Mr. Foisel.

Ladies and gentlemen, the report of the Correlating Committee on Safety to Life on NFPA 101 Life Safety Code is presented as found in the first draft report and the second draft report for the annual 2023 revision cycle.

The correlating committee has published a first draft report and a second draft report consisting of revisions to NFPA 101. The revisions

were submitted by letter ballot of the responsible committees.

The reports and ballot results can be found at the next edition tab of the document information page for NFPA 101 at www.nfpa.org/101next. With that reported, I move for Standards Council issuance of the committee's report on NFPA 101.

MR. FOISEL: Thank you. Let's now proceed with discussion of Certified Amending Motion 1010-6. Microphone 5, please.

MR. TYREE: Good afternoon. Ken Tyree representing Steve Sawyer and the International Fire Marshalls Association. As the authorized mover of this motion I move acceptance of Certified Amending Motion 106 - 101-6.

MR. FOISEL: Thank you. There is a motion on the floor to accept public comment number 51. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please proceed with discussion on the motion.

MR. TYREE: Thank you. CAM 101-6 removes the proposed requirements on valet trash services in new apartment buildings. The proposed text by the

for valet trash industry raises many fire and life safety concerns.

The introduction of the trash in the quarters of any occupancy goes against the basic principles of egress for occupants and creates a fire and life safety, property protection, and firefighter safety hazard and is in direct violation of Section 7.1.10.1 Maintenance.

Means of egress shall be continuously maintained free of all obstructions or impediments to full extent use in the case of fire or other emergency.

Also Chapter 30 and 31, Section 3.2.1.1 list trash collection rooms as hazardous areas and requires protection over and above the occupancy requirements.

Also Section 7.2.2 of Chapters 30 and 31 prohibits contents and furnishings of highly flammable character from use outside the dwelling unit, quarters also separated from dwelling units and part of the means of egress.

Past fire history has shown how combustibles in the means of egress contribute to fire spread, hampers firefighting efforts, and limits the occupants the ability to egress.

Materials, especially combustible materials, are firefighter safety issues as it creates a new fire load when stored in the means of egress and may inhibit quick and effective firefighting operations.

Collection of trash is usually performed during evening hours where data shows the greatest number of deadly fires in residential occupancies occur.

If the building is sprinkled there are no requirements for the container except size. They could be placed in a plastic bag, can with a lid.

There is no limit on the number of containers per unit in the quarters, separation requirements between containers, or placement -- position in the quarter on the same side staggered within the quarter. There is no mention of how often the container can be placed in a quarter -- daily, every other day, weekly.

The technical committee provided no justification for any of the requirements proposed and did not address the technical committee notes, technical committee statement.

If there is no language in the code valet trash is still allowed but there will be no

requirements on how it is done is false. By that logic I can store consumer fireworks in the quarter as there is no language addressing that particular concern.

No fire testing or fire modeling has been performed to justify or validate the proposed requirements in the residential occupancy setting. Thank you.

MR. FOISEL: Chip, would you like to offer the correlating committee's position?

MR. CARSON: Yes, sir. Thank you. Under its responsibilities for scopes within the correlating committee's purview, the correlating committee reviewed revisions to Chapter 30.

The correlating committee found no conflicts or correlation issues in revisions that resulted in the 2024 life safety code development process.

I would like now to defer to Microphone No. 2 to Josh Lambert, who's a member of the technical committee and responsible for these sections.

MR. LAMBERT: Thank you, Mr. Chair. I'm Josh Lambert. I'm a principal member of the Technical Committee on Residential Occupancies. I

speak in opposition to the motion based on the balloted results of the committee.

Public comment number 51 seeks to delete new Subsection 30.7.5, which was added to the code at the first draft stage.

In its statement for First Revision No. 6666, the committee indicated that the proposed language was consistent with the Residential Occupancies Committee approved in the previous cycle except for the requirements for lids, which was consistent with what was submitted for consideration in the International Fire Code.

The language was approved by the committee last cycle, was deleted by an amendment at the 2020 tech section. This was further appealed to the Standards Council, which determined that valet trash requirements are within the scope of NFPA 101.

The ballot results for FR6666 were out of 30 eligible voters. Twenty-one voted affirmative, one of which with comments. Three voted negative. And six were not returned.

In its statement for rejection of public comment number 51, which sought to delete Subsection 30.7.5 in its entirety, the committee indicated that the submitter provided insufficient justification

for the removal of valet trash requirements which were developed by a task group consisting of a wide range of stakeholders.

The committee further stated that if the requirements are deleted from the code valet trash services will still be permitted with no minimum requirements to mitigate the potential hazards.

MR. FOISEL: Thank you. With that, we will open debate on the motion. Please be sure to provide your name, affiliation, and whether you are speaking in support of or against the motion. Microphone 3, please.

MR. LAMOTTE: My name is Kip LaMotte. I am the Secretary of the International Fire Marshalls Association in support of this CAM. And I'm going to read a letter from the National Fallen Firefighters Foundation addressed to our president Ken Tyree.

And it says the National Fallen Firefighters Foundation supports the efforts of the International Fire Marshalls Association to remove provisions related to valet trash services from NFPA 101 Life Safety Code. Specifically the NFFF supports certified amending motions known as CAM 106-6 and 101-8 respectively.

NFFF has considerable concern for the safety and well-being of the public and firefighters which could be jeopardized by accumulated trash in the means of egress.

Any situations which obstruct exits, increases fire loading, and potentially compromises building fire protection systems places the public and firefighters at risk and must not be allowed without first considering how to offset these risks with proper engineering and fire protection systems.

NFFF strongly supports this important endeavor that will improve civilian and firefighter life safety both by saving lives and preventing injury. Thank you.

MR. FOISEL: Thank you. Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, on this issue representing the National Trash and Recycling Valet Association in opposition to the motion.

This is not storage. This is an activity that is occurring within the corridor that is not prohibited. The technical committee has stated you can do this today no matter what the outcome of this vote is here today.

The code permits it. The only restriction in the code to this activity would be that you have to maintain the egress clear. And you still have to maintain the clear width of the egress.

I would encourage you to look through the language that's being proposed to be deleted and take into account the committee's statement that you can do it today.

So there was a comment made that, well, if it's in a sprinklered building you lose the restrictions on the container. Well, if you take this out you lose the restrictions on the container in all buildings.

And in fact you don't even limit the size of the container. You don't even require a lid on the container. All I have to do is maintain the required width of the corridor.

So I, you know, here is an industry that has come before you that said we want restrictions on our industry because we want this to be done in a safe manner.

I have prior fire service experience. I have no problem if this is done in accordance with these provisions. I don't think it represents an unacceptable hazard. I encourage you to support the

committee.

MR. FOISEL: Microphone No. 5, please.

MR. TYREE: Ken Tyree representing the International Fire Marshalls Association in support of this motion. Many of the provisions are not easily enforced due to the nature of this service.

The membership did defeat this in the last technical session when the previous edition was submitted. There has been no new language, no new justifications, and no new information where these requirements have been proposed. And I would ask support of this motion. Thank you

MR. FOISEL: Microphone 2.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for NFRA and in opposition to the motion. I was part of the task group that we were working on this when it went into the International Fire Code. We heard the same arguments. We heard the same thing. It's impossible to test.

I have tested these materials. A 300 kilowatt per square meter big heat release rate in the cone calorimeter for these materials ensures that they are not highly flammable.

You heard me talk before about I am a

supporter of plastic but only plastics with very good fire performance.

If you have a material that releases less than 300 kilowatts per square meter in the cone calorimeter 50 kilowatts per square meter internal heat flux that is a material with very good fire performance.

On top of that these materials have to have a lid that is tightly fitting. You can only put one of them. And this industry's been using this.

They've been buying this type of garbage cans. They are very specific garbage cans that they collect. And they are using this throughout the country -- have been using it for years.

They are asking that you regulate because, as Bill Koffel pointed out, they can keep doing this even if you defeat this. They can keep doing it.

But they want us to regulate so that there is -- we don't have rogue operators doing things that we don't want them to do. This is a very safe practice. There is no evidence of any incidents.

Earlier today I was told that when I brought something to increase regulation I should have showed instances of failure.

Well, here we don't have any instances of failure. We don't have any instances of a problem. Please oppose this motion and permit this industry to be properly regulated. Thank you.

MR. FOISEL: Microphone 3, please.

MR. DAWE: Yeah. Thanks. Nick Dawe of Kenny Fire Marshalls Office -- also on the IFMA Board of Directors for Codes and Standards. And I'm speaking for the motion.

IFMA as a whole -- we represent AHJs from all over the world. This topic is very concerning to our members. We've been discussing it for years. And fundamentally we think storing trash in any means of egress is a bad idea.

The proposal goes against core principles of fire and life safety built into the codes. And you know, obstructing any egress pass or path is going to be bad.

Let's see. Some obvious administration -- administrative concerns we have is, like, what's going to happen when somebody doesn't pick up the trash as scheduled? Is it allowed to be kept in the hallway for a week?

There's going to be all kinds of challenges with the types of materials that go in

there even so much as to our firefighters.

We train them with low visibility to, you know, use the hallways. And these are now going to be areas that we're storing trash.

So I think a lot more consideration needs to be given for this with respect to how it's going to be enforced. So and I encourage everybody to support the motion.

MR. FOISEL: Microphone 4, please.

MR. FRANCIS: Sam Francis and representing the National Multi-Housing Council. The Council --

MR. FOISEL: Are you for or against?

MR. FRANCIS: I'm at the oppose and the National Multi-Housing Council is actually -- well, let's say opposed in this case. We're supporting the vendors in this instance as represented, I think, by Mr. Koffel very adequately.

And I would like to add one thing to this discussion. And that is the argument is about is this long-term storage or is this an incidental use and you still have to maintain the corridor.

So those who are arguing long-term storage and then likewise arguing that you can't enforce it have no substantial basis to continue that argument. So the Council supports the manufacturer's

opposition to this.

MR. FOISEL: Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel and Associates representing -- and I'll shorten it to National Valet Trash Association. To respond to a couple of comments -- you heard a comment --

MR. FOISEL: For or --

MR. KOFFEL: I'm sorry. I'm opposed to the motion. Thank you. You've heard comments that, well, you didn't approve this three years ago. And that's correct. And I successfully -- potentially successfully -- used that argument earlier today.

It was a different scenario. First off, we were not in person three years ago. We were using a virtual discussion on the issue.

Secondly, what the membership had three years ago were conflicting recommendations. They had a recommendation to put this in NFPA 101. And you had a recommendation to not allow this in NFPA 1.

So obviously we were confused as to what to do with this issue. The Standards Council subsequently said this is an egress life safety issue. It's under the jurisdiction of the Safety to Life project.

You've heard discussions about we can't have this in the corridor. Well, there's a lot of other things in the corridor also. Again as long as I maintain clear width.

Upholstered furniture. Are we going to prohibit the delivery services of putting things at the doors to these apartments? There's no restriction on that.

So again you have an industry that's saying there is a safe way to do it. We encourage you to support that by opposing this motion.

Marcelo's alluded to the fact that essentially the same requirements are in an appendix of the International Fire Code. And there have been years of successful operation without any adverse experience. I encourage you to support the committee.

MR. FOISEL: Thank you. Microphone 3, please.

MR. LAMOTTE: Again my name is Kip LaMotte with the International Fire Marshall Association. Mr. Koffel kind of alluded to it and I was --

MR. FOISEL: For or against the motion?

MR. LAMOTTE: For.

MR. FOISEL: Thank you, sir.

MR. LAMOTTE: Certainly for.

Also for consideration -- and he mentioned it for those in ICC states Chapter 10, which is a means of egress doesn't like combustible materials blocking exits or anything blocking the means of egress.

And it's in the appendix, which is a choose to adopt or choose not to adopt. So it's an option in the ICC. Thank you for consideration.

MR. FOISEL: Okay. Is there any further discussion on Motion 101-6 to accept public comment number 51?

Seeing none, there's no one at the microphone there so -- nope. Seeing none, Mr. Carson, would you like an opportunity for any final comments?

MR. CARSON: I will defer to the technical committee representative if he would like to say something.

MR. LAMBERT: I have no further comments. Thank you.

MR. FOISEL: Thank you. Before we vote let me restate the motion. The motion on the floor is to accept public comment number 51.

To vote touch the vote button. If you

wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. Thank you. The results of the vote are 81 votes in support of the motion and recommends the text on screen one. And 142 against the motion and recommend the text on screen two. The motion has failed. Thank you.

Let's now proceed with the discussion of Certified Amending Motion 101-11. Microphone 5, please.

MR. TYREE: Ken Tyree representing Steve Sawyer, President of the International Fire Marshalls Association as the authorized mover of this motion CAM 101-11.

MR. FOISEL: Motion.

MR. TYREE: I move acceptance --

MR. FOISEL: Thank you.

MR. TYREE: -- of CAM 101-11. Thank you.

MR. FOISEL: Thank you. There is a motion on the floor to accept public comment number 55. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please proceed with the discussion on the motion.

MR. TYREE: Public comment 55 moves to modify the proposed requirements on valet trash services in new apartment buildings.

To save time, we stand behind the testimony we had previous mention in a previous CAM. This comment places additional requirements and cleans up language in the technical committee's proposed text.

Chapter 30 Section 7.5.1 adds a requirement for the AHJ to permit the service before it can be used. Based on the hazardous nature of this service, many comments online about valet trash services, local conditions, and current building and fire and life safety compliance, the AHJ should be reviewing if the service would be permitted than a blanket permission.

Valet trash was proposed in NFPA 1 last cycle. Responsibility for permits were required as well as other requirements related to fire and life safety, property protection, and firefighter safety that are not included here.

30.7.5.3 combines all the container provisions in one place. 30.7.5.4 copies the

provisions from healthcare on the items in quarters -- containers only on one side, grouping, and separation requirements. I move the passing of this motion.

MR. FOISEL: Thank you. Mr. Carson, would you like to offer the correlating committee's position?

MR. CARSON: I will defer to the technical committee representative Mr. Lambert.

MR. LAMBERT: Thank you, Mr. Chair. I'm Joshua Lambert. I'm the principal member of the Technical Committee on Residential Occupancies. I speak in opposition to the motion based upon the balloted results of the committee.

The committee developed First Revision No. 666 based on the work of a task group consisting of a wide range of stakeholders.

The language is consistent with what the Residential Occupancies Committee approved in the previous cycle except for the requirement for lids, which was consistent with what was submitted for consideration in the International Fire Code.

The language that was approved by the committee last cycle was deleted by an amendment at the 2020 tech section. This was further appealed to

the Standards Council, which determined that valet trash requirements are within the scope of NFPA 101.

The ballot results for FR6666 were out of 30 eligible voters. Twenty-one voted affirmative. Three voted negative. And six were not returned.

The committee reviewed all submitted public comments and maintained its position supporting the language accepted at the first draft stage. The committee additionally noted the proposed language would create enforcement challenges.

MR. FOISEL: Thank you. With that, we will open debate on the motion. Please remember to provide your name, affiliation, and whether you are speaking in support of or against the motion. Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing the National Valet Trash Association. In addition to what the committee representative has indicated as to why they took some of their action and the challenges associated with enforcement -- so we heard in the previous item that it was going to be difficult to enforce. Now we're adding some additional things, making it even more challenging for the enforcement officials.

But I think the real key on this one is the permit process. This is the only place that I know of in the Life Safety Code that there's anything that says the authority having jurisdiction shall issue a permit.

We talk about approvals. We talk about a variety of other things. But we don't have a permit process anywhere in NFPA 101. If in fact a permit process is appropriate it should probably be in NFPA 1. Thank you.

MR. FOISEL: Is there any further discussion on Motion 101-11 to accept public comment number 55?

Seeing none, Mr. Carson, would you like an opportunity for any final comments?

MR. CARSON: No, sir. Thank you.

MR. FOISEL: Okay. Before we vote let me restate the motion. The motion on the floor is to accept public comment number 55.

To vote touch the vote button. If you wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. The results of the vote are 50 in support of the motion and recommend the text on screen one and 153 against the motion and recommend the text on screen two. The motion has failed.

Let's now proceed with the discussion on Certified Amending Motion 101-7. Microphone 5, please.

MR. TYREE: Thank you very much. Ken Tyree representing Steve Sawyer and the International Fire Marshalls Association. And to save time, basically this -- oh, I apologize. As the authorized mover of this motion I move acceptance of 101-7.

MR. FOISEL: Okay. We have a motion on a floor the floor -- to accept an identifiable part of public comment number 55. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please proceed with the discussion on the motion.

MR. TYREE: Thank you very much. Chapter 30, 7.5.1 adds a requirement to the AHJ to permit the service before it can be used.

And as I had mentioned earlier, based on the hazardous nature of the service and the many

comments, local conditions, and current building and fire life safety compliance the AHJ should be reviewing this service -- if it would be permitted than a blanket permission.

And as mentioned earlier about permits in 101, there are no permits in 101. But this would give the AHJ an opportunity to be able to have a knowledge of this service being conducted. Thank you.

MR. FOISEL: Thank you. Mr. Carson, would you like to offer the committee's position?

MR. CARSON: Thank you, sir. Again I'll defer to the technical committee representative Mr. Lambert.

MR. LAMBERT: Thank you, Mr. Chair. I'm Joshua Lambert. I'm a principal member of the Technical Committee on Residential Occupancies. I speak in opposition to the motion based upon the balloted results of the committee.

The identifiable part of public comment number 55 seeks to add a new paragraph -- 30.7.5.1 -- which would require AHJ permission to use Subsection 30.7.5 Valet Trash Requirements.

The committee developed First Revision No. 6666 based on the work of a task group consisting of

a wide range of stakeholders.

The language is consistent with what the Residential Occupancies Committee approved in the previous cycle except for the requirements for lids, which was consistent with what was submitted for consideration in the International Fire Code.

The language that was approved by the committee last cycle was deleted by an amendment at the 2020 tech session. This was further appealed to the Standards Council, which determined the valet trash requirements are within the scope of NFPA 101.

The ballot results for FR6666 were out of 30 eligible voters. Twenty-one voted affirmative. Three voted negative. And six were not returned.

The committee reviewed all submitted public comments and maintained its position supporting the language accepted at the first draft stage. The committee additionally noted the proposed language would create enforcement challenges.

MR. FOISEL: With that, we will open debate on the motion. Please provide your name, affiliation, and whether you are speaking in support of or against the motion. Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel and

Associates, representing the National Valet Trash Association in opposition to the motion. So this is the same item as what you just heard without some of the additional requirements.

But the focus really here is the permit process. I think we spoke to that before. I really have nothing new to add. I will just ask you to think about the comments I've offered on the previous two items.

MR. FOISEL: Okay. Microphone 2, please.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, for NFRA in opposition. This is identical to what the first motion that we discussed in 1010 except adding the permit.

The proponent said there's no requirement for a permit in 101. So be consistent with what you've done before. Oppose it.

MR. FOISEL: Okay. Microphone No. 1, please.

MR. GARRIS: Dwayne Garris representing the National Association of State Fire Marshalls in support of the motion.

All this does is give the actual notification to the fire official that a process is taking place in a location which gives the ability

for the enforcement, which was part of the concern.

This is the exact same language that's in the annex of the International Fire Code, which does require a permit.

The reason it's not permitted in any other place is because the Standards Council took this away from the NFPA 1 and put it in 101. And therefore this is the only place that we can have the permitted application. Thank you.

MR. FOISEL: Okay. Microphone 5, please. Oh, sorry. Okay. Microphone 1, please.

MR. MCHONE: Tom McHone. I'm with SEK SRM but I'm representing myself. I'm actually very --

MR. FOISEL: Are you for or --

MR. MCHONE: I'm for the motion. I couldn't get my outrage together earlier on the first time we went through it.

I'm really speaking as a resident of an un-sprinklered high rise. I live on the tenth floor of an un-sprinklered high rise where the fire department has pretty much stated they couldn't get to us on the tenth floor.

And to think that our valet service would -- which we have. We have a sprinklered -- we have a room on each floor -- a noncombustible room that

has a sprinkler in it. And it's just a partial head for that room.

So I think I am missing something previous to this discussion that got us here. But as I've caught my breath here and voted on the few I'm jumping in here to say we need to get AHJ to be looking at it.

If we put -- if we in my building, which is run like an insane asylum at 22 stories, start allowing people to put their -- call it valet if you want. It would not be valet. It would be people on garbage night putting their stuff in the hall.

And to have support from our organization -- one of the premiere fire prevention organizations -- saying that this is what we should do to make our building compliant with something -- we're putting out this very well-done paragraph -- why not just have some AHJ say-so in here? Which is where I was able to jump in -- this first line 30.7.5.1.

Because without it the problem of a non-sprinklered high rise building that we all know is there -- this is just going to make it worse.

And I am in the New York City area where if this becomes any part of any kind of code in New York or Philadelphia where people start to take

advantage of this - I believe it's new construction only. But I haven't gotten -- I don't know for sure. I just see this as a disaster waiting to happen. Thank you.

MR. FOISEL: Microphone 5, please.

MR. MCGRAW: Thank you. Brian McGraw, Stand Tech, representing myself. I wanted to give -- and I'm in support --

MR. FOISEL: Are you --

MR. MCGRAW: -- of the motion. I wanted to give Dwayne the chance to get the NASFM position in officially because I'm having deja vu to the last code cycle when I was a Virginia State Fire Marshall and we spoke in opposition to valet trash both at the ICC hearings and at the NFPA hearings.

Really what this proposal does is it creates a requirement for an affirmative notification to the AHJ so they know what's going on in their jurisdiction.

Mr. Koffel has said, you know, there's no permits in 101. I agree with that. But since the Standard Council gave this to 101 instead of 1 maybe it's time for permits in 101.

Otherwise there needs to be a corresponding action in 1 to create the permit. And

it's one of the challenges of the NFPA system of getting that correlation and getting which committee it is.

You know, Florida -- I live in Florida now. Florida was, I think, the first state in the country to legislatively allow valet trash. Didn't go through the codes process. They legislated it.

But now essentially with 101 putting these requirements in if the State adopts 101 it opens the door so that the valet trash companies can come in.

The AHJ doesn't necessarily know about it until they go and do their next routine inspection of the facility. And by that point the cat's out of the bag.

By requiring a permit or approval from the AHJ the AHJ becomes aware that it's happening in a particular property. They may decide to increase inspections to correspond with the trash pick-up to make sure that the regulations are being required -- or being complied with.

And they can notify responding fire companies of, hey, this is going to be happening in a building in your first due area. Maybe you ought to go preplan and be prepared for it.

In the ICC process this is the way the

language was done for mobile fueling -- as allowed by the AHJ. All this proposal does is gives the AHJ that tool to better know what's going on in their locality. So I'd urge you to support the motion. Thank you.

MR. FOISEL: Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel and Associates, representing the National Valet Trash Association in opposition to the motion.

Yeah; I'm receptive to the argument we're hearing from the National Association of State Fire Marshalls. But that's not what this section does.

What I've heard them say is we want to know about it. Well, then put in a requirement to say notify the fire official.

This says where permitted by. Therefore there's a -- their intent is that a permit is required. There is an approval process by the authority having jurisdiction for something that the code already allows.

So again we can accomplish what NASFM is trying to do by simply putting in a different sentence than what's included in this. Again I encourage you to vote against the motion.

MR. FOISEL: Thank you. Microphone 3,

please.

MR. DAWE: Yeah; Nick Dawe and speaking in favor of the motion. I do want to point out that I'm representing the International Fire Marshalls Association. And our members are clearly asking for this. So just to try to tee it up to the room, fire marshals are literally asking for a permit process on this.

And with respect to NFPA 101 getting other permits, I mean, I'm sure everybody uses the codes different. But it's not uncommon. We see special event permits or permits for conference-style events come out of 101 as well. So I would say there are other permits in NFPA 1. Thank you.

MR. FOISEL: Microphone 2, please.

MS. AMMERMAN: MeLinda Ammerman, BAE Systems, representing myself. I propose to call the question.

MR. FOISEL: Thank you. Okay. There is a motion on the floor to call to question. I notice that there's still one person at a microphone waiting to speak. But we will proceed with the vote on call to question. Do we have a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. In

order to vote on this motion please scroll down to the bottom of the device to vote. If you wish to vote in support of the motion touch yes. If you wish to vote against the motion touch no. Please record your vote. The voting will close in five seconds.

The voting is closed. The results of the vote are 183 in support of the motion to call the question and 17 against the motion to call to question. The motion has passed.

So with that, we're going to take a vote on the motion. Before we vote on it let me restate the motion. The motion on the floor is to accept an identifiable part of public comment number 55.

To vote touch the vote button. If you wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. The results of the vote are 91 in support of the motion and recommend the text on screen one and 121 against the motion and recommend the text on screen two. The motion has failed.

Let's now proceed with the discussion on Certified Amending Motion 101-8. Microphone 5, please.

MR. TYREE: Ken Tyree representing Steve Sawyer, International Fire Marshalls Association. As the authorized mover of this certified amending motion I move the acceptance of 101-8 public comment 52.

MR. FOISEL: Thank you. There is a motion on the floor to accept public comment number 52. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please proceed with discussion on the motion.

MR. TYREE: Thank you. So some of the same comments to our proposal of 101-6. New construction. We are dealing with and have concern about existing construction in the same regards of impacting egress, property protection, and firefighter safety.

As we know, it's a hazardous condition. And it creates a hazardous condition. And really when you look at existing construction on new construction there are -- they would be required to have fully sprinkled buildings.

Under this condition of existing construction there will be a lot of circumstances where the buildings will not be fully sprinkled or sprinkled at all unless they have a trash collection room. Thank you. And I ask for your support in this motion.

MR. FOISEL: Mr. Carson, would you like to offer the committee's position?

MR. CARSON: Yes. This is the same issue we had for new only it now applies to existing. But I would like to defer to technical committee representative Mr. Lambert, please.

MR. LAMBERT: Thank you, Mr. Chair. I'm Josh Lambert. I'm a principal member of the Technical Committee for Residential Occupancies. I speak in opposition to the motion based on the balloted results of the committee.

So public comment number 52 seeks to delete new Subsection 31.7.5, which was added to the code at the first draft stage.

In its statement for First Revision No. 6738 the committee indicated that the proposed language was consistent with what the Residential Occupancy Committee approved in the previous cycle except for the requirement for lids, which was

consistent with what was submitted for consideration in the International Fire Code.

The language that was approved by the committee last cycle was deleted by an amendment at the 2020 tech session. This was further appealed to the Standards Council, which determined that valet trash requirements are within the scope of NFPA 101.

The ballot results for FR6738 were out of 30 eligible voters. Twenty-two voted affirmative. Two voted negative. And six were not returned.

In its statement for the rejection of public comment number 52, which seeks to delete Subsection 31.7.5 in its entirety, the committee indicated that the submitter provided insufficient justification for the removal of valet trash requirements, which were developed by a task group consisting of a wide range of stakeholders.

The committee further stated that if the requirements are deleted from the code valet trash services will still be permitted with no minimum requirements to mitigate potential hazards. Thank you.

MR. FOISEL: Thank you. With that, we will open debate on the motion. Please remember to provide your name, affiliation, and whether you are

speaking in support of or against the motion. Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing the National Valet Trash Association in opposition to the motion.

If you vote in favor of this motion you are doing exactly opposite of what the submitter wants. Because what you will have are requirements for new construction -- here's how we're going to regulate it.

For existing building, which potentially don't have the same level of fire protection features or systems as a new building might have, we're going to be silent on it.

And you're going to have a committee statement that says it's already permitted by the code. So you'd be allowed to do this in an existing building with no controls. I encourage you to vote against the motion.

MR. FOISEL: Microphone 5, please.

MR. TYREE: Ken Tyree representing the International Fire Marshalls Association. Great respect for the comments --

MR. FOISEL: For or against, please?

MR. TYREE: For.

MR. FOISEL: Thank you.

MR. TYREE: I'm for the motion. Thank you.

Great respect for the comments that have been made. But the fact of the matter is if it was removed from the existing occupancies there would be a means of enforcing the code based on 7.1.10 and the current language that is in 30 and 31.

And it would actually give us an opportunity to ensure that proper egress paths are maintained in existing construction.

Probably couldn't take into consideration a new introduction to containers in the hallways and the combustibles -- the added combustibles that would be there. So I would ask and urge support of this motion. Thank you.

MR. FOISEL: Thank you. Microphone 2, please.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for NFRA in opposition to the motion. This is the exact same language that you opposed in new construction going to existing construction. And so to be consistent with what you've done before you should continue opposing this concept.

But it's interesting. If we're going to be silent on what happens in existing construction, which is where obviously this has been going on for years, but we say it can happen in new construction, this is inconsistent. Please oppose the motion and continue being consistent with what you've been doing today. Thank you.

MR. FOISEL: Is there any further discussion? Oh. Microphone 2, please.

MR. KELLY: Kevin Kelly from Victaulic representing myself on this one. I'm against this motion. But I want to talk about all of them together.

This is all existing buildings. We're putting something in so we should probably do something to offset that hazard. This is probably not the one.

The next one, 12, probably won't stand a chance either. Then you have No. 9. That's going to get AHJ. That might work. But No. 10 is going to be the most powerful one that'll offset this hazard.

Put something in to offset the hazard. That's sprinklers. So I don't know if I can talk about those other ones on 101-8. But as we move

through these next four I'd recommend we get down to 101-10 and do something that really makes a difference. Thank you.

MR. FOISEL: Microphone 2, please.

MS. AMMERMAN: MeLinda Ammerman, BAE Systems, representing myself. I mirror the same comments as just said by Mr. Kevin.

I'd like to reiterate again that in no way is this section of -- that's been added allowing the trash service or the valet trash. It's already allowed. So regardless it is adding more restrictions against what they can and cannot do.

There's also a section that specifically states that egress requirements are still mandated so that is not in conflict with previous sections.

MR. FOISEL: Okay. Is there any further discussion on Motion 101-8 to accept public comment number 52?

Okay. Seeing none, Mr. Carson, would you like an opportunity for final comments?

MR. CARSON: No, sir. Thank you.

MR. FOISEL: Okay. Before we vote let me restate the motion. The motion on the floor is to accept public comment number 52.

To vote touch the vote button. If you

wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no.

Please record your vote. The voting will be closed in five seconds.

The voting is closed. Thank you. The results of the vote are 50 votes in support of the motion and recommend the text on screen one, 150 votes against the motion and recommend the text on screen two. The motion has failed.

Let's now proceed with the discussion of Certified Amending Motion 101-12. Microphone 5, please.

MR. TYREE: Ken Tyree representing Steve Sawyer and the International Fire Marshalls Association authorized mover of this motion and move to accept --

MR. FOISEL: Thank you.

MR. TYREE: -- Motion 101-12.

MR. FOISEL: Thank you. There's a motion on the floor to accept public comment number 56. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please

proceed with the discussion on the motion.

MR. TYREE: So this CAM and the following CAM are similar as to they were with new construction looking for permitting with some of the same concerns we had there -- container size, the location of the containers, and being able to have permitting process for the AHJs to have a knowledge and to be aware of the services that are being provided because currently in a lot of places they do not. They're not aware of the services that are being provided.

So we're seeking to have a permit. And I think under existing conditions -- well, under new conditions there would be a plans review process in place so there would be a knowledge of what is occurring in the valet trash services versus the existing occupancy where there would not be a plans review process necessarily to this existing occupancy and the services. I would ask support of this motion. Thank you.

MR. FOISEL: Thank you. Mr. Carson, would you like to offer the committee position?

MR. CARSON: Again I'd like to defer to the technical committee representative Mr. Lambert.

MR. LAMBERT: Thank you, Mr. Chair. I'm

Josh Lambert, principal member of the Technical Committee for Residential Occupancies. I speak in opposition to the motion based upon the ballot results of the committee.

The committee developed First Revision No. 6738 based on the work of a task group consisting of a wide range of stakeholders.

The language is consistent with what the Residential Occupancies Committee approved in the previous cycle except for the requirements for lids, which was consistent with what was submitted for consideration in the International Fire Code.

The language that was approved by the committee last cycle was deleted by an amendment at the 2020 tech session. This was further appealed to the Standards Council, which determined the valet trash requirements are within the scope of NFPA 101.

The ballot results for FR6738 were out of 30 eligible voters. Twenty-two voted affirmative. Two voted negative. And six were not returned.

The committee reviewed all submitted public comments and maintained its position supporting the language accepted at the first draft stage. The committee additionally noted the proposed language would create enforcement

challenges.

MR. FOISEL: Thank you. With that, we will open the debate on the motion. Please provide your name, affiliation, and whether you are speaking in support of or against the motion. Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel and Associates, representing the National Valet Trash Association in opposition to the motion.

And again I'm not going to repeat what I said on the other items. You have already voted on this item for new construction.

But I do want to just address one issue. Talk about challenges associated with enforcement. We're going to have one set of criteria for buildings built as a new building under the 2024 edition code.

We're going to have a different set of requirements -- because this is not just a permit. But we're going to have a different set of requirements for buildings that were existing at the time you adopted the 2024 edition of the code.

There's going to be a lot of confusion out there if you approve this. I encourage you to vote against this motion.

MR. FOISEL: Is there any further discussion on Motion 101-12 to accept public comment number 56?

Seeing none, Mr. Carson, would you like an opportunity for final comments?

MR. CARSON: No, sir. Thank you.

MR. FOISEL: Okay. Before we vote let me restate the motion. The motion on the floor is to accept public comment number 56.

To vote touch the vote button. If you wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. Thank you. The results of the vote are 37 in support of the motion and recommend the text on screen one and 154 against the motion and recommend the text on screen two. The motion has failed.

Let's now proceed with the discussion on the Certified Amending Motion 101-9. Microphone 5, please.

MR. TYREE: Ken Tyree, International Fire Marshalls Association, asking to move acceptance of

Motion 101-9. Excuse me.

MR. FOISEL: Thank you. There is a motion on the floor to accept an identifiable part of public comment number 56. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please proceed with the discussion on the motion.

MR. TYREE: Thank you. Here we're asking for permit process for existing buildings. And I think, as mentioned earlier, as I mentioned, the difference in new construction and existing building -- a permit process would be great to have for the basic knowledge of this process going on in existing buildings and have a process and procedures following what has been previously been passed under existing construction.

So we're seeking a permit process for existing construction. It would obviously only be existing construction only. But we ask support of this motion.

MR. FOISEL: Thank you. Mr. Carson, would you like to offer the committee position?

MR. CARSON: Again I will defer to the technical committee representative Mr. Lambert.

MR. LAMBERT: Thank you, Mr. Chair. Josh

Lambert, principal member of the Technical Committee on Residential Occupancies. I speak in opposition to the motion based on the balloted results of the committee.

The identifiable part of public comment number 56 seeks to add new Paragraph 31.7.5.1, which would require AHJ permission to use the Subsection 31.7.5 Valet Trash Requirements.

The committee developed First Revision No. 6738 based on the work of the task group consisting of a wide range of stakeholders.

The language is consistent with what the Residential Occupancies Committee approved in the previous cycle except for the requirements for lids, which was consistent with what was submitted for consideration in the International Fire Code.

The language that was approved by the committee last cycle was deleted by an amendment at the 2020 tech session. This was further appealed to the Standards Council, which determined the valet trash requirements are within the scope of NFPA 101.

The ballot results for FR6738 were out of 30 eligible voters. Twenty-two voted affirmative. Two voted negative. And six were not returned.

The committee reviewed all submitted

public comments and maintained its position supporting the language accepted at the first draft stage. The committee also additionally notes the proposed language would create enforcement challenges.

MR. FOISEL: Thank you. With that, we will open debate on the motion. Please provide your name, affiliation, and whether you are speaking in support of or against the motion. Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing the National Valet Trash Association in opposition to the motion.

I understand the difference with new versus existing. But at the time I do plan review for new construction I don't necessarily know that there's going to be a valet trash service in the building. So I don't think the plan reviewer is going to look at it any differently.

With regard to existing, there are no construction requirements in here. These are operating feature requirements. So I encourage you to do what you've done before and vote against the motion.

MR. FOISEL: Is there any further

discussion on Motion 101-9 to accept an identifiable part of public comment number 56?

Seeing none, Mr. Carson, would you like an opportunity for final comments?

MR. CARSON: No, sir. Thank you.

MR. FOISEL: Okay. Before we vote let me restate the motion. The motion on the floor is to accept an identifiable part of public comment number 56.

To vote touch the vote button. If you wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. The results of the vote are 45 in support of the motion and recommend the text on screen one, 158 against the motion and recommend the text on screen two. The motion has failed.

Let's now proceed with the discussion of Certified Amending Motion 101-10. Microphone 5, please.

MR. TYREE: Ken Tyree, International Fire Marshalls Association representing Steve Sawyer.

And as the authorized mover of this motion move the acceptance of Certified Amending Motion 101-10.

MR. FOISEL: Thank you. There is a motion on the floor to accept public comment number 53. Is there a second? We do have a second. Please proceed with the discussion on the motion.

MR. TYREE: Thank you very much. This is a difference maker. In new construction apartment buildings would be required to have automatic fire sprinkler system. If valet trash is to be permitted as it's already been passed in existing occupancies automatic fire sprinklers should be installed.

And it really would be a difference maker. And with the increased hazard, the impact on property protection, potentially firefighter safety, and fire and life safety, this is the time for sprinklers.

And it would be a retroactivity. But it's time for sprinklers in this existing occupancy for valet trash services that would be in these existing apartment occupancies. We'd appreciate your support on behalf of this motion.

MR. FOISEL: Mr. Carson, would you like to offer the committee position?

MR. CARSON: Once again I will defer to

the committee representative Mr. Lambert.

MR. LAMBERT: Thank you, Mr. Chair. Josh Lambert, principal member for the Technical Committee on Residential Occupancies speaking in opposition to the motion based on the work of the technical committee.

Public comment number 53 seeks to add new paragraph 31.7.5.8, which would permit valet trash services in buildings with an approved automatic fire sprinkler system.

The package requirements in Subsection 31.7.5 was developed by a task group consisting of a wide range of stakeholders.

The committee reviewed all submitted public comments and upheld its position supporting the language accepted at the first draft stage.

The committee determined that these requirements would provide an adequate level of protection whether the building was sprinklered or not.

MR. FOISEL: Thank you. With that, we will open debate on the motion. Please provide your name, affiliation, and whether you are speaking in support of or against the motion. Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel and Associates, speaking on behalf of the National Valet Trash Association in opposition to the motion.

And I heard some of Mr. Kelly's comments earlier about -- and some others have referred to this as a difference maker.

Well, first off, they're assuming we're adding a risk to the building that's not already permitted by the code. And that's not a true assumption. The committee has already said this is permitted.

But I want to focus on some other issues. This verbiage that they have proposed is very problematic. If you look at the typical references for sprinkler systems in the Life Safety Code you will often see the word approved followed by supervised. So this does not require the system to be supervised. It simply needs to be approved.

You will typically see a reference that says this system shall be installed in accordance with 9.7 or something like that. This gives me no installation requirements.

In other words, as a fire official I could accept anything I want to. And I could call it a sprinklered building and we could move forward. The

language is defective. And I encourage you not to support this motion.

MR. FOISEL: Microphone 2, please. Or sorry, 3.

MR. LAMOTTE: Again my name's Kip LaMotte, Secretary of the International Fire Marshall Association. I also want to do --

MR. FOISEL: For or against, please?

MR. LAMOTTE: Certainly for. I'm not going to read the whole letter from the National Fallen Firefighters Foundation. But they did have support of CAMs 101-7, 1019, 101-10, 101-11, and 101-12.

But just wanted to let everyone know concessions could have been made to take smoke detection out of hallways if sprinklered protection was added.

But I'm certainly for demanding sprinkler protection if you're going to do valet trash in your building. Thanks for your consideration.

MR. FOISEL: Microphone No. 5, please.

MR. KELLY: Kevin Kelly, Victaulic, representing myself. I'm in support of this motion. Supervised or not, you got to get water on the fire. This will do that.

This CAM will help building occupants, the building owner, fire marshals, fire chiefs, fire departments -- everybody in that building. It's going to keep a hazard out of the buildings that haven't reached that higher level of safety with sprinklers. I urge support. Thanks.

MR. FOISEL: Microphone No. 1, please.

MR. MCHONE: Tom McHone, SEK Safety and Risk Management but speaking for myself. What I'm still confused about is with where you --

MR. FOISEL: For or --

MR. MCHONE: I'm certainly for.

The issue of this being allowed by the code -- it keeps coming up -- the quote it's allowed by the code.

I'm not there yet because I just didn't get to do enough research. Are we saying that we can store our -- if my building says we can store boxes in the hallway we can do that?

Because if that's allowed by the code where are we saying that trash is allowed to be stored? That's one issue. Bringing it back to the issue at hand with sprinkler systems, it obviously would make the difference.

If we're saying we don't think sprinklers

at the point of new construction with trash being allowed to be stored in buildings up to 5 hours -- we as safety professionals are allowing single periods of up to 18 hours containers up to 5 hours in a corridor not exceeding 5 hours? I'm not following. I'm just not following that.

So if we are as an organization the biggest proponent in the world for residential sprinklers and trying to push this as a way to save lives but we're saying we're going to add load to a hallway that doesn't have sprinklers in new construction -- I'm just not following. I am really encouraging people to vote for this one. Thank you.

MR. FOISEL: Microphone 6, please.

MR. KOFFEL: Bill Koffel, Koffel Associates, representing the National Valet Trash in opposition to the motion. I am a sprinkler advocate -- as much of a sprinkler advocate as probably almost anybody else in this room.

I'm just saying this doesn't really address the issue. I'm a code geek. If you say something different in one paragraph as compared to the way you say it in other paragraphs you must mean something different.

So we're not even necessarily getting an

NFPA 13 or a 13 system here. We're just getting something that a local fire official or building official will approve.

We're doing it because we're going to have this regulated service that has time restrictions and in non-sprinklered buildings has container requirements.

Who's regulating the delivery services that are putting packages in front of somebody's door and they're sitting there for a week or two because the people are away on vacation? There's nothing that regulates that.

What in the code regulates me from putting an upholstered chair in that corridor as long as I maintain adequate egress width? Nothing.

So I think, you know, I -- again it's hard for me to speak against something that's going to push sprinklers. But this is not the issue.

If we want existing buildings to be sprinklered then let's put that in Chapter 31 that all existing buildings need to be protected with a sprinkler system not because you're going to do something that is now being regulated that is permitted by the code today without restriction.

MR. FOISEL: Microphone 5, please.

MR. MCGRAW: Brian McGraw, Stand Tech representing myself in support of the motion. Just want to touch on a couple things that have been said here real quick.

You know, the term approved without supervised, approved without NFPA 13 or 13R or 13D, you know, there's a definition for approved in Chapter 2 -- acceptable to the authority having jurisdiction.

There are lots of instances in the NFPA codes where the default is acceptable to the authority having jurisdiction or as approved by the authority having jurisdiction.

Because it's problems -- that wording -- because you go to some jurisdictions and the AHJ uses it to -- they basically think they can require anything they want.

So you know, we have the definition. We have the term. We'll use it. If an AHJ wants to require an NFPA 13 system, that's what's acceptable to them, that's what they approve.

If they're willing to allow a non-supervised system that's subject to their approval. But if you're putting a sprinkler system in, typically it meets NFPA 13. I don't many AHJs out

there that would allow a sprinkler system that doesn't meet 13.

So you know, to some degree we're splitting hairs. We're playing word games. So just to touch on that for one quick second, you know, we go back to some of these other motions and the discussion of the use of the word permitted. As permitted or when permitted by the AHJ.

And the argument has been made that the use of that word requires a permit from the AHJ. NFPA Link has a handy tool where you can search words. The word permitted appears 2,011 times in NFPA 101.

None of those instances require you to get a permit. It's where allowed. Permitted equals allowed. Permitted is not defined. But it means allowed.

So the previous attempts where permitted by the AHJ -- if the AHJ allows it you can do it. For this one, sprinkler system, as approved by the AHJ.

But adding the argument as well that the code currently allows this operation -- there's language in NFPA 1. There's language in the IFC that does restrict or prohibit combustibles in means

of egress. It limits quantities of combustibles. So --

MR. FOISEL: Thank you.

MR. MCGRAW: -- I'd ask you to approve the motion.

MR. FOISEL: Thank you. Is there any further discussion on Motion 101-10 to accept public comment number 53?

Seeing none, Mr. Carson, would you like an opportunity for any final comments?

MR. CARSON: No, sir. Thank you.

MR. FOISEL: Okay. Before we vote let me restate the motion. The motion on the floor is to accept public comment number 53.

To vote touch the vote button. If you wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. Thank you. The results of the vote are 128 in support of the motion and recommend the text on screen one, 86 against the motion and recommend the text on screen two. The motion has passed.

Is there any further discussion on NFPA 101?

Okay. Seeing none, that concludes consideration of all the certified amending motions on NFPA 101.

We will now move on to the final standard on the agenda for the Certified Amending Motions NFPA 5000 with Building Construction and Safety Code.

Mr. Peter Willse, will you please present the chair report?

MR. WILLSE: Thank you, Mr. Foisel. Ladies and gentlemen, the report of the Correlating Committee on the Building Code of NFPA 5000 Building Construction and Safety Code is presented as found in the first draft report and the second draft report for the annual 2023 revision cycle.

The correlating committee has published a first draft report and a second draft report consisting of revisions to NFPA 5000.

The revisions were submitted by letter ballot of the respective committees. The reports and ballot information or ballot results can be found on the next edition tab of the document information page for NFPA 5000 at

www.nfpa.org/5000next.

With that reported, I move for the Standards Council issuance of the committee's report on NFPA 5000 Building Construction and Safety Code.

MR. FOISEL: Thank you, Mr. Willse.

Let's now proceed with the discussion on Certified Amending Motion 5000-1. Microphone 1, please.

DR. HIRSCHLER: Marcelo Hirschler, GBH International for NFRA, and I move 5000-1.

MR. FOISEL: Thank you. There is a motion on the floor to accept public comment number 32. Is there a second?

UNIDENTIFIED SPEAKER: Second.

MR. FOISEL: We do have a second. Please proceed with the discussion on the motion.

DR. HIRSCHLER: Thank you. Marcelo Hirschler, GBH International for NFRA and in support. All this CAM does is demand deleting the words or other approved test methods.

There are two reasons for that -- less fire safety and less consistency. First it's not safe to allow other approved test methods without clarification. It's clear that there is no guarantee that other tests will be equivalent in

terms of fire safety to ASTM E119.

It doesn't even say equivalent test method. It just says any other approved. The committee rationale for rejecting it refers to Section 1.4 of the code. I assume it means 1.5 on equivalency.

And it says that alternate materials method are permitted. That's great. But that section applies to any and all sections of the code and addressing this particular section is irrelevant or it applies to every section of the code.

Therefore there is a potential implication here that this section is special. Other tests can be used here but not in other sections. There is a whole bunch of other references to ASTM E119 or UL 263. In none of them does it say or other approved test methods.

It puts the responsibility on the AHJ to consider other tests. This is not appropriate. And this is not safe.

Second, this language is not consistent with the equivalent language in eight other sections of NFPA 5000, all of which reference ASTM E119.

It's important to note that several other sections reference E119 and none of them contain the

words that we're trying to strike here.

48215, 822421, 822431, 82332, 48412 -- in each of these sections it's very clear the fire resistance test are to be conducted in accordance with one of two equivalent tests -- ASTM E119 or UL 263.

I'm not going to bother reading to you the sections. You can look them up. But it's interesting the annex for this particular section says that ASTM E119 and UL 263 are equivalent. Nothing else is equivalent.

If an international body wants to do something about looking at an alternative test they probably have to invent one or hire a consultant to try to decide which is an equivalent test.

Actually it doesn't even say equivalent -- which other test they want to approve. This is again neither safe nor consistent with the rest of the code. I urge you to support. Thank you.

MR. FOISEL: Thank you. Mr. Willse, would you like to offer the committee position?

MR. WILLSE: Sure. Under this responsibility for scopes within the correlating committee's purview, the correlating committee reviewed the technical committee's actions on public

inputs and public comments.

The correlating committee found no conflict or correlation issues that resulted in the annual 2023 NFPA 5000 development process.

I would like to defer to the Microphone No. 2 to the chair of the technical committee who is responsible, Mr. Nathan Wittasek.

MR. WITTASEK: Thank you, Mr. Chair. I am Nate Wittasek and have the distinct privilege of serving as the chair of the Building Code Technical Committee on Fire Protection Features.

I speak in opposition to the motion based on the balloted results of the committee. First I'd like to thank Dr. Hirschler for his interest and participation in the process.

The current motion on the floor relates to public input number 76, which was submitted during the first draft stage, and public comment number 32, which was submitted during the second draft stage.

At the first draft meeting in July 2021 the Technical Committee on Fire Protection Features resolved public input number 76, citing the portion of the public input related to the subsequent public comment number 32 would not result in a technical change as the use of other approved methods would be

permitted under Section 1.4 for equivalency.

The motion to resolve public input number 76 passed at the first draft meeting. And no related first revisions were created.

At the second draft meeting in August of 2022 the Technical Committee on Fire Protection Features rejected public comment number 32, citing that the removal of these provisions could be detrimental as it could reduce the flexibility of international authorities having jurisdiction to permit the use of alternative approved methods.

The motion to reject public comment number 32 passed at the second draft meeting. And no related second revisions were created. Thank you.

MR. FOISEL: Thank you. With that, we will open debate on the motion. Please provide your name, affiliation, and whether you are speaking in support of or against the motion. Microphone No. 1, please.

DR. HIRSCHLER: Marcelo Hirschler, GBH International, speaking for NFRA and in support of the motion.

You notice that the committee chair didn't offer any technical arguments. He just basically mentioned the vote numbers. He mentioned the

section on equivalent alternate methods.

Why is that only in this reference to ASTM E119 and not in all the other reference to ASTM E119 in the code? There are, as I've said, several references -- all of them reference only ASTM E119 or UL 263 as the test that you can use.

So this section is specific. It's different here in this case. And the international authority is entitled to hire a consultant to invent another test or choose another test that doesn't even have to be equivalent. Just has to be anything else that they choose to approve.

Why? Why not do it like all other references to ASTM E119 in the code? Why anywhere else in the code we say this is what you shall do and if you want to an alternate you go to Chapter 1 because Chapter 1 applies to everything the code? There's nothing specific about this section.

Fire resistance rating with structured elements are to be determined in accordance with the requirements of E119 or UL 263.

And the annex says those two are equivalent. Perfect. That's what you should apply. You shouldn't start going to other approved test methods. Thank you.

MR. FOISEL: Is there any further discussion on Motion 5000-1 to accept public comment number 32?

Okay. Seeing none, Mr. Willse, would you like an opportunity for any final comments?

MR. WILLSE: Not at this time. Thank you.

MR. FOISEL: Okay. Before we vote let me restate the motion. The motion on the floor is to accept public comment number 32.

To vote touch the vote button. If you wish to vote in support of the motion and recommend the text on screen one touch yes. If you wish to vote against the motion and recommend the text on screen two touch no. Please record your vote. The voting will be closed in five seconds.

The voting is closed. Thank you. The results of the vote are 55 in support of the motion and recommend the text on screen one and 140 against the motion and recommend the text on screen two. The motion has failed. Thank you.

Let's now proceed with the final certified amending motion of 2023 CAM No. 5000-2. The next motion on NFPA 5000 appeared on the agenda.

However the authorized maker of the motion or the designated representative has notified NFPA

that this motion will not be pursued.

Therefore in accordance with NFPA rules the motion may not be considered by the assembly and is being removed from the agenda.

We will now wrap up. I need a different script.

Okay. Is there any further discussion on NFPA 5000?

Okay. Seeing none, it would be unreasonable for me to not thank everyone for your time and participation today. It is my pleasure to serve as presiding officer and conclude debate on the motions for the 2023 tech session.

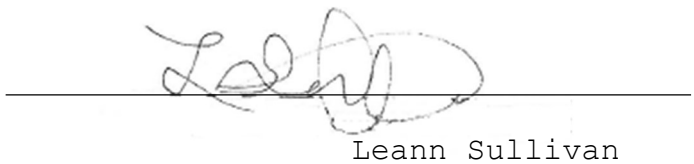
On behalf of the entire NFPA Council and NFPA this officially concludes the 2023 NFPA Technical Meeting. I want to thank you for your participation, your interest, and support. I now declare the 2023 Technical Meeting officially adjourned.

(WHEREUPON, the meeting adjourned.)

CERTIFICATE

I, Leann Sullivan, do hereby certify that the proceeding named herein was professionally transcribed on the date set forth in the certificate herein; that I transcribed all testimony adduced and other oral proceedings had in the foregoing matter; and that the foregoing transcript pages constitute a full, true, and correct record of such testimony adduced and oral proceeding had and of the whole thereof.

IN WITNESS HEREOF, I have hereunto set my hand this 10th day of July, 2023.



Leann Sullivan

1

1 24:20 58:17 65:17 72:24 76:11 76:12 77:8 84:17 84:19 87:16 90:15 118:13 129:9 150:14 156:16 186:20 190:19 193:10 197:18 198:7 198:11 200:22 200:25 203:14 225:7 229:24 232:7 236:18 237:16 237:17

1,000 35:13

1,155 146:2

1,400 44:11

1,500 38:15

1.1.2 122:23

1.1.3 122:25 123:5

1.3.3 123:3

1.4 233:5 236:1

1.5 157:13 233:5

1.6.2 9:10

1.6.2B 27:18

10 89:2 188:3 210:20

10.2.3 59:16

10.7.1.1 51:3 51:9 52:23

10:36 119:23

100 44:25 166:1

101 28:8 59:16 73:21 74:8 74:24 89:2 89:13 97:18 173:14 173:16 173:19 173:25 174:5 174:8 178:17 179:23 186:18 192:2 193:8 195:6 195:6 196:11 197:16 198:7 200:21 200:22 200:23 201:8 201:9 203:9 203:13 207:7 214:17 218:21 229:13 231:2 231:5

1010 197:14

1010-6 174:10

101-10 211:2 220:22 221:2 224:12 230:7

101-11 189:12 189:17 189:21 193:12 224:12

101-12 212:13 212:20 216:2 224:13

101-6 174:16 174:23 188:11 205:16

101-7 194:7 194:14 224:12

101-8 179:25 205:2 205:7 210:25 211:17

1019 224:12

101-9 216:22 217:1 220:1

101next 174:6

103 163:13 167:4 167:16 167:23 171:19 172:14 172:21

106 174:16

106-6 179:25

11 111:22

113 112:14

12 100:20 100:22 139:8 210:18

121 204:23

128 230:22

12th 9:9 27:11

13 33:10 33:25 38:17 38:19 44:20 227:1 227:1 228:6 228:20 228:25 229:2

13.6.1.1.5 45:1

130 80:9

139 146:1

13D 228:6

13R 228:6

14 28:6 29:17 29:19 33:11 33:25 36:1 50:13 51:2 57:14 57:16 95:23 99:1 99:5 139:9 165:18 166:18 166:24

140 28:7 71:23 72:5 72:13 72:18 72:21 75:3 80:9 81:9 81:10 238:18

140-1 72:24

73:3 78:18 79:25 80:16
140next 72:19
14-10 49:22 56:21
14-17 30:17 30:20 41:23
14-18 43:1 43:4 43:4 47:23 48:23
142 189:9
14NE-X-T 30:10
15 94:23 96:17 119:22 137:24 143:18 143:18 143:25 144:12 145:12 148:10 148:25 157:16
15.2 141:13
150 212:9
153 194:3
154 216:18
158 220:18
159 112:15
15-foot 149:9
16 68:21 68:23 70:7 70:23 71:4 84:10 94:23
162 119:11
1621 137:16
17 173:4 204:9
17,000 171:10
170 71:12
178 159:19
18 148:15 148:17 148:18 226:4
183 204:8
188 111:21
18-inch 150:5
1986 18:14 18:15 21:7
1994 170:15
1996 16:25 22:10 22:11
1997 21:17
1999 20:15 20:17

2

2 41:5 48:7 87:15 87:22 93:18 102:25 108:15 122:15 123:9 124:8 125:21 131:17 135:10 143:11 152:15 153:2 153:15 154:7 171:7 177:20 182:13 197:10 203:15 209:17 210:9 211:4 224:3 228:8 235:6
2,011 229:12
2.3.1 76:13
2.7 160:24
20 9:8 9:16 27:11 27:20 32:6 87:16 100:16 100:18
20,000 157:9 164:17 170:17 170:20
200 63:8 63:17
2000 20:22 22:5 23:16 23:16 23:20
2001 19:21 23:14
2002 21:3 21:23 23:9
2003 22:12 156:25
2004 19:19 21:18 21:22 23:20 62:15
2005 17:25 74:20
2006 17:11 21:6 22:25
2007 22:19
2008 23:3 23:5
2009 19:2 40:15
2010 17:12
2011 22:6 22:7 23:10
2012 21:24 157:6
2013 18:3 19:20 21:2 21:6 21:14 21:18 22:12 40:24
2014 17:22 18:2 18:23 18:24 19:3 19:18 19:22 22:17 22:20 22:25
2016 20:13 20:15
2017 21:15 146:4
2018 19:15 116:24 117:11
2019 18:4 39:13 144:3
2020 10:21 74:24 87:3 150:20 178:14 191:25 196:9 207:5 214:15 218:19
2021 10:21 19:14 75:3

87:8 235:20
2022 7:24
10:22
20:24 21:3
21:4 21:7
24:14
29:25
44:20 58:3
67:24 72:9
81:24
83:17 113:12
151:3 236:6
2023 5:2
5:3 5:6 7:18
7:24 14:24
15:4 15:9
17:13
18:14
18:15
20:20
20:22
21:11
21:14
21:18 24:5
24:7 24:14
28:3 45:1
120:19 136:7
162:3 162:18
173:22
231:17 235:4
238:22
239:13
239:15
239:18
2024 36:24
50:13 166:21
177:17
215:16
215:22
2025 45:1
20-foot
148:13
148:24
149:10
211 81:7
212 67:8
215 173:5
22 5:3 199:9
23 28:3
235 49:20
24 28:3 160:2
241 57:11
242 42:24
42:24
247 159:11
248 42:24
42:24
25 13:6
28:3 149:3
250 35:25
25-foot 149:8
149:20
26 171:14
260 28:7
81:12
81:19 82:2
82:6 82:10
83:3
260-24
82:15
82:16 82:22
263 233:16
234:6 234:10
237:6 237:21
270 118:12
28 30:21
30:24
42:16
151:3 159:11
286 28:7 83:5
83:12
83:20
83:25 84:4
84:9 85:16
85:17 87:5
88:13
88:22 89:5
89:12 90:2
90:5 91:3
91:7 91:13
92:24
92:25 93:3
93:15
93:25 94:4
100:2
100:5 103:13
104:9 104:24
106:20
107:17
108:22 109:6
109:18
109:19
112:18
112:21 122:3
286-14 84:9
94:23
286-15 84:9

3

3 39:11 99:17
104:12
109:12
126:24
127:15 128:1
133:15
133:20
133:23
134:12
145:15 154:8
163:7 179:12
184:5 187:18
202:25 224:4
3.2.1.1
175:13
30 136:25
152:24
165:25
175:13
175:17
177:14
178:19
190:11 192:4
194:22
196:13 207:9
209:8 214:19
218:23
30.7.5
178:4 178:24
195:23
30.7.5.1
195:21
199:19
30.7.5.3
190:24
30.7.5.4
190:25
300 182:21
183:4
30A 28:8
120:8 135:21
137:17 138:4
139:8 139:21
140:2 143:25
147:15
148:25
152:21

154:23
157:19
157:23 160:1
161:5

30A-10 159:25

30A13 159:24

30A-14
160:2 160:15

30A-15
160:2 160:14

30A-22 159:24

30A-23 159:24

30A-24 160:14

30A-30 136:25
137:21
153:10
159:13
159:23

30A-5
159:24 160:4

30A8 160:2

30A-8 160:14

31 137:20
175:13
175:17 209:8
227:20

31.7.5 206:19
207:13 218:8
222:12

31.7.5.1
218:6

31.7.5.8
222:8

312 69:14
70:9 70:15

32 232:12
235:18
235:24 236:7
236:13 238:3
238:9

33 62:2

34 137:5
137:7 137:19
139:3

35 43:7 48:24
49:14

350 69:7
69:18
69:25 70:9
70:13

36 50:2
50:4 56:22
57:6 124:11

37 216:17

4

4 28:7
38:11 47:2
63:25 78:7
79:7
114:13
114:16 115:2
117:10
118:24 119:6
120:7 120:10
120:20 121:3
121:5 125:12
126:23
127:13
127:15 128:2
128:10 131:2
133:17
133:18
135:19
163:25 166:3
167:25 168:5
168:6
169:5 169:22
170:11
171:20 185:9

4.1 127:1

4.2.1 100:21

4.4.2 167:7

4.4.4.2 76:1

4.5.3 9:5

4.6 9:5

4.7 9:1 9:5

40 32:6 149:9

400 35:25
44:12

4-1 120:13
121:8 121:11

44 116:4
162:21

45 28:6 57:18
57:25 58:6
58:11
58:14
62:16 64:5
67:11
67:14 220:17

45,000 157:8

45-1 58:17
58:20 66:15

48215 234:2

48412 234:2

5

5 43:1
47:19
54:10
54:23
55:14 63:23
68:17
84:10
94:25 101:24
107:9
114:9 117:22
121:8 121:13
125:8
127:1
128:4 130:10
137:1
148:3
153:3
160:4 174:11
182:2 189:12
194:7 198:10
200:5
205:2 208:20
212:13
216:22
220:22
224:21 226:2
226:4
226:5 227:25

5.1.1 100:25

5.12 93:14
94:15
94:22
100:4
101:9 107:20
108:3 108:21

5.12.2
87:18
92:12 100:7

5.12.2.1
101:2

5.12.2.4
101:8

5.12.2.5 92:2
101:12

5.4.1.2 127:1

5.4.1.3 127:9
50 183:5 194:2 212:8
5000 28:8 89:3 89:13 231:8 231:14 231:20 231:25 232:4 233:23 235:4 238:23 239:8
5000-1 232:7 232:10 238:2
5000-2 238:22
505 28:7 112:23 113:7 113:15 115:2 116:24 117:14
505-1 114:9 118:23
51 174:18 178:3 178:23 188:12 188:24
511 138:5 140:3
514 138:5 140:3
52 205:8 205:10 206:18 207:12 211:18 211:24
53 221:4 222:7 230:8 230:14
54 115:7 116:10
55 189:23 190:3 193:13 193:19 194:17 195:21 204:14 238:17
56 57:11 212:22 216:3 216:9 217:4 218:6 220:2 220:9
58 28:7 67:16 68:3 68:9 68:13 71:16 71:21 115:8
58-5 68:16 70:22 71:10
58-6 68:16 70:22
58-7 68:16 70:22

6

6 75:3 97:6 111:1 137:15 158:19 162:19 168:18 180:15 186:2 192:16 196:24 202:6 208:2 215:5 219:9 222:24 226:14
6.3.2 36:25
6.3.7 142:25
60 149:13
625 138:5 140:3 141:17
632-7911 5:22
65 81:6
666 191:16
6666 178:7 195:25
6738 206:22 214:6 218:10

7

7 52:22 162:19
7.1.10 209:7
7.1.10.1 175:8
7.2.2 175:17
7.5.1 190:11 194:22
7.5.3 37:8
7.8.3 46:14
7.8.3.1 45:18
70 49:20 140:3 141:17 141:21 147:8 155:10
702 5:21
702-632-7911 26:1
75 119:12
76 67:7 235:17 235:22 236:3
77-911 5:21 25:25
783 44:4

8

8 89:3 100:19 100:21 138:4 138:23 140:2 142:12
80 115:7 116:10
81 189:7
822421 234:2
822431 234:2
82332 234:2
855 141:22
86 230:23
89 159:19

9

9 210:19
9.6.2 36:24
9.7 223:21
90 44:12
91 204:22
94 71:13
99 28:8 161:19 161:25 162:6 162:11 162:13 162:16 163:23 165:18 166:21 168:2 169:25 173:9

173:12
99-11
162:16
162:20
99-14
164:20
164:23 165:3
99-44 162:16
9947 163:19
99-47 163:7
163:10
171:18
172:13
99-7 167:18
167:21

A

A453 73:13
ABC 31:5
31:16
31:20 32:8
32:25 33:4
33:11
33:12
33:18
33:19 34:1
34:9 35:21
36:7
Aberdeen 17:9
ability
34:4 62:24
175:25
197:25
able 52:3
56:6 75:4
147:19
166:25 195:7
199:19 213:6
above-mentioned
165:11
abroad 146:22
absence 20:3
absolutely
39:9 130:6
abstain
124:14
abundant
77:22 77:22
accelerate
156:22
accept
58:22
66:15 67:1
73:5 75:23
77:14
78:18
80:16
80:25
137:4
137:6 145:12
152:13
163:12 167:3
171:18
172:13
172:20
174:18
188:11
188:24
189:23
193:12
193:19
194:16
204:13
205:10
211:17
211:24
212:18
212:22 216:2
216:9
217:3
220:1
220:8
221:4 223:24
230:7 230:14
232:12 238:2
238:9
acceptable
75:4 104:5
228:8 228:11
228:20
acceptance
127:11
174:15
189:19
194:14 205:7
216:25 221:2
accepted
36:15 75:5
192:8 196:17
214:23 219:2
222:16
access 7:18
Accidental
118:6
accomplish
202:21
accordance
9:1 9:4
24:20
27:17 60:4
76:1 82:22
85:16
89:12
89:13
91:13
91:15
91:16 92:3
107:16
120:23 127:5
160:23 163:1
167:7 181:23
223:20 234:4
237:20 239:2
according
66:9 166:7
account 181:7
accumulated
180:3
accurate
10:19 105:1
accused
103:25
achieve 126:9
acidic
64:18 64:21
acknowledge
20:2
acknowledged
76:16
across
44:11 115:1
act 119:19
138:9 161:9
acted 8:22
24:17
action 8:20
8:25 14:15
34:23 38:4
38:22
42:12 51:1
152:9 192:21
200:25
actions 9:7
27:10
112:6 166:17

169:8 234:25
activate 44:22
activated 6:2 26:6 129:4
activation 126:18
active 61:3 66:2 124:25 125:13 126:7 126:10 126:13 126:22 127:9 128:15 128:25 129:14 129:18 129:22 129:23 134:7
actively 35:10
activities 31:11 107:1 119:18 125:13 138:7 140:8 142:13 152:7
activity 97:22 140:12 140:15 180:21 181:2
actual 75:16 94:16 101:1 108:24 109:1 128:11 133:13 197:23
actually 49:6 55:21 89:13 95:14 124:2 155:15 170:18 185:14 198:13 209:9 234:16
ad 89:13
add 54:17 54:19 60:17 60:19 61:1 64:5 66:11 137:16 149:7 185:18 195:21 197:7 218:6 222:7 226:10
added 45:18 60:24 75:15 100:4 124:8 124:24 134:2 141:17 178:4 206:19 209:14 211:9 224:17
adding 41:13 59:22 75:8 77:20 80:8 192:24 197:14 211:11 223:8 229:22
addition 30:7 33:19 45:6 45:6 62:15 108:11 141:8 144:8 144:21 192:19
additional 56:7 66:8 139:10 190:8 192:24 197:4
additionally 7:11 11:2 50:18 94:19 192:9 196:18 214:24 219:3
address 6:5 12:18 16:3 97:11 98:4 107:6 122:6 139:22 140:4 140:6 140:15 142:6 158:17 163:20 165:11 166:10 176:22 215:13 226:21
addressed 45:12 79:19 167:18 179:17
addressing 30:20 48:19 130:14 177:3 233:10
adds 52:3 73:13 73:18 190:11 194:22
adequate 35:24 76:9 91:10 92:1 167:15 222:18 227:15
adequately 140:3 185:17
adherence 164:10
adjacent 123:1 152:4
adjourned 239:19 239:20
adjournment 9:8 9:17 27:12 27:21
adjusted 32:1
administration 184:19
administrative 184:20
adopt 164:6 188:8 188:8
adopted 38:18 74:9 88:16 215:22
adoption 164:9
adopts 201:9
advance 14:25
advances 165:14
advantage 200:1
adverse 187:15

advocate
226:17
226:18

affect
37:13
61:17 141:4

affected
121:17

affects
123:16

affiliation
12:14
12:17 38:9
39:19 41:6
47:3 47:20
48:8 49:24
54:9 54:24
55:15
63:24
65:18
68:18 77:9
78:8 79:8
84:11
87:23
90:16
93:19 95:1
97:7 99:18
101:25 103:2
104:13 106:3
107:10
108:16
109:13 111:2
117:23 125:6
143:9
148:5 168:17
179:10
192:14
196:23
207:25 215:4
219:8 222:23
236:17

affirmative
87:17 117:19
124:12
178:19 192:4
196:13
200:17 207:9
214:19
218:23

afforded
13:14

afternoon
174:12

against 12:15
38:1 38:10
39:25 41:4
41:6 41:10
41:20
42:19 47:4
47:6 47:21
48:9 48:11
49:17
54:10
54:25
55:16 57:9
57:11
63:25 64:4
65:19 67:4
67:8 71:7
71:13 77:9
78:9 78:15
79:9 79:11
81:3 81:7
87:24
90:17
93:20
93:23 94:8
94:23 95:2
95:7 97:8
99:19
102:1 104:11
104:14 106:4
107:11
108:17
108:19
109:14 110:3
111:3 112:11
117:24 119:9
119:12
122:11 135:3
135:11
138:24
143:10
143:16 148:6
153:17 159:8
159:11
159:16
159:19
168:18
169:20
170:10
170:18
170:19
171:25
172:25 173:5
175:4 179:11
184:15
185:12
187:23 189:3
189:9 192:15
193:23 194:3
196:24
202:24 204:4
204:9 204:18
204:23 208:1
208:19
208:24
210:11
211:12 212:3
212:10 215:5
215:25
216:13
216:18 219:9
219:23
220:13
220:18
222:24 224:8
227:17
230:18
230:23
236:18
238:13
238:18

agencies
114:25

agenda 7:18
7:20 7:23
11:23
14:12 25:2
28:9 29:16
57:18
67:16
71:23
81:12
82:17
82:25 83:5
112:23
119:16
120:10
135:21
160:19
160:25
161:19
162:21 163:4
173:14 231:7
238:23 239:4

agent
123:23
130:22

aggregate
46:22

aggressive
126:2

ago 131:1
157:6 186:10
186:14
186:17

agreed 46:8
46:16
66:20 69:5
69:25 97:20

agreement
69:7
105:13
109:21

Agriculture
20:10

AHA 128:21

ahead 31:3
74:22 133:11
133:21

AHJ 190:12
190:16
194:22 195:2
195:7 195:22
199:6 199:18
200:18
201:11
201:16
201:16 202:2
202:2 210:20
218:7 228:15
228:19 229:8
229:10
229:19
229:19
229:21
233:18

AHJs 184:10
213:7 228:25

aims 70:7

air 100:23
166:4

Alan 93:22
98:6 108:18

alarm 5:25
6:2 6:6
6:9 26:4
26:6 26:11
26:14
44:21 49:6

albeit 53:12

alert 75:5

Alex 114:10
114:21

alleviate
45:20 46:9

Alliance
22:22

allow 5:14
13:12
25:18
40:11 42:4
45:24 60:6
63:6 88:7
139:20
186:19 201:6
228:22 229:1
232:23

allowable 8:3
12:3 150:7

allowance
56:10

allowed 64:22
89:7
176:25 180:8
184:22 202:1
208:17
211:11
225:13
225:14
225:20
225:21 226:2
229:15
229:16
229:17

allowing
37:11 199:10
211:9 226:3

allows
53:11
101:6
166:4 202:20
229:19
229:23

alluded 132:9
187:12
187:22

alluding
131:22
131:23

already
6:18 37:1
37:7 55:18
74:9 80:10
110:23 133:4
133:4 151:14
159:24 164:7
168:24
202:20
208:16
211:10
215:11
221:11 223:8
223:10

alternate
106:23 233:7
237:1 237:16

alternative
234:13
236:11

am 15:11
16:18 40:1
58:20
60:22
68:20
79:13
93:21 95:4
99:22 104:20
104:21
105:23
109:21
145:19
157:17
157:18
157:21
169:24 170:1
179:14
182:25 199:3
199:23
226:12
226:17 235:8

ambiguous
100:5

amend 9:2

amended 27:19
28:11
30:17 43:1
49:22
57:15
67:13
68:16
71:21
72:24 73:3
81:10
82:15
82:16
82:24 83:2
84:9
112:20 114:9
135:19

amending

7:3 7:10
7:16 7:23
8:2 8:8 8:12
8:18 8:22
12:3 12:6
14:6 24:11
24:16 28:6
70:6
119:15 120:7
120:13 121:8
136:25
153:10
154:18
159:12
159:22 160:4
161:4
161:7 162:15
162:17
162:20 163:3
163:7 173:11
174:10
174:15
179:24
189:12 194:7
205:2
205:6 212:13
216:22
220:22 221:2
231:4
231:7
232:7 238:22

amendment
9:11 9:13
9:15 27:13
178:14
191:24 196:8
207:4 214:14
218:18

Amentum 78:10

America 115:1
154:10

American 21:9
38:14 50:1
143:13
152:18

Amerigas
68:20 118:2

Ammerman
203:16
203:16 211:5
211:5

amount 151:5

Amy 18:18
18:19
18:20 19:5

analysis
151:10 170:5

anchors 96:7

and/or 12:7
65:15

Android 10:24

angles 94:9

annex 51:9
51:11
51:14
73:13
73:13 74:1
76:22 124:24
130:15
130:18 134:4
198:3
234:9 237:22

announce
13:22 29:6

announcement
5:24 26:3

announcements
6:4 26:9

annual 7:18
7:24 24:14
24:25
40:22 120:19
162:2 162:18
168:22
173:22
231:17 235:4

answering
11:8

anybody 70:20
105:18
226:19

anyone
11:13
12:10
15:22 28:15

anything
40:11
61:16
61:17
75:11
156:9 156:10
172:3
188:5
193:4 223:24
228:17
237:11

anywhere 32:6
35:22 157:11
193:8 237:14

apart 85:9

apartment
155:20
174:25 190:5
221:8 221:21

apartments
155:22 187:7

apologize
79:6 194:12

app 6:21
10:25 11:4
11:6 11:18
28:25 29:3

Apparently
17:2

appeal 9:10
27:9 27:13

appealed
178:15
191:25 196:9
207:5 214:15
218:19

appeals 9:6
28:3

appear
13:17
29:11 29:12

appeared
82:16 160:19
162:21
238:23

appears
229:12

appendix
187:13 188:7

application
28:13
28:17
90:11 198:9

applications
115:13
164:21

applied
165:15
165:19

applies
206:10 233:9

233:11
237:17

apply 64:24
164:24
237:23

appointed
97:20

appreciate
120:4 125:25
157:23
221:21

appreciated
15:6

appreciates
139:18

appreciation
16:16 24:1

approach
11:24

approached
82:18
82:22
97:15 162:22
162:25

appropriate
13:10
52:10 93:4
141:13 143:2
155:4 163:25
164:10 166:7
193:9 233:19

approval
35:18 201:15
202:18
228:23

approvals
146:12 193:6

approve
186:10
215:24 227:3
228:21 230:4
234:17
237:12

approved
53:23
71:25 72:6
73:20
74:24
178:9 178:13
191:19
191:23 196:3
196:7 206:24
207:3
214:9 214:13
218:13
218:17 222:9
223:16
223:18 228:5
228:6
228:7 228:12
229:20
232:20
232:23 233:3
233:16
235:25
236:11
237:24

approximately
38:15
94:18
95:23 164:17

arbitrary
48:4 91:25
93:12 102:14

arc 138:20
140:21 150:1
150:2

architectural
115:12

Architecture
22:14

area 6:4 26:8
43:16
46:22
64:22 66:8
113:17
115:24
118:13 140:7
141:10
141:22
141:23 142:2
142:4 142:22
142:23
148:13 149:1
149:5 149:11
150:5 151:23
151:24 152:3
199:23
201:23

areas 10:12
69:22 112:25
113:9 113:24
114:5 141:24
142:4
142:6 142:11
142:13
142:14
142:20
175:14 185:4

argue 129:2

arguing
185:22
185:23

argument
126:6 185:19
185:24
186:12
202:10 229:9
229:22

arguments
52:7 131:8
151:22
182:19
236:24

arising
140:22

arranged 37:3

arrangement
34:20 36:17

arrangements
6:18 99:4

arriving 49:7

arrows 86:14

article
141:17
150:25

Articles
138:5 140:3

Artisone
171:8 171:9

ASI 84:14
84:25 95:5
102:3

asleep 165:5

ASME 169:14
169:16

aspects 37:14

assemble
139:7

assemblies
88:7 124:20

assembly
29:19 80:5
82:24
96:13 126:19

126:21
126:22
160:25 163:2
239:3

assertion
156:5

assess 6:9
26:14

assessed 13:9

assessing
104:6 166:6

assigned
11:18
28:25
34:22 127:16

assist 15:5
28:18

assistance
11:11

assists 12:21

associated
17:24
18:25
22:18
73:24 125:19
128:23
139:16 140:8
140:16 141:1
141:6
142:7
142:8 192:21
215:14

Associates
97:10
106:7 121:11
121:15
130:13
180:18 186:4
192:18 197:1
202:8
208:4
215:8 219:12
223:2 226:16

association
10:8 21:10
24:5 38:14
38:15 41:9
48:11 50:1
54:12 111:15
114:12
114:22
114:23 137:4
137:13
174:14
179:15
179:21
180:19 182:4
186:5 187:21
189:16
192:19
194:11 197:2
197:21 202:9
202:11 203:5
205:5
208:5 208:22
212:17 215:9
216:25
219:13
220:25 223:3
224:7

assume 106:10
149:8 233:5

assuming
223:7

assumption
123:8 123:17
223:10

assure 85:8
86:3

ASTM 60:4
74:23 89:4
89:6 89:8
89:20
233:1 233:15
233:23 234:5
234:10 237:2
237:3
237:5 237:14

asylum 199:9

atmosphere
32:16

Atmospheres
22:9

attached
117:5

attacking
35:10

attempt
104:11
144:11

attempted
137:16

attempting
143:17

attempts
229:18

attendance
12:10

attendee 7:7

attention
5:12 34:15

attributed
151:17

attributes
150:23

audience
14:11 80:12

AUDIO 5:1

August
20:24 28:2
236:5

authorities
236:10

authority
193:4 202:19
228:8 228:12
228:13 237:9

authorized
8:6 11:22
82:17 160:20
162:22
174:14
189:16
194:13 205:6
212:17 221:1
238:24

automatic
6:12 19:10
19:17
26:17
30:21 31:5
31:14
34:16 37:9
37:11
38:23
38:23
38:24
38:25 39:8
39:14
44:24 51:7
51:18
62:16
221:9 221:12
222:9

automatically
168:11

Automotive
20:14
136:3 136:8

auxiliary
50:14

available 7:4
7:14 11:1
11:2 11:11
12:4 25:3
35:21
35:25
48:18
52:11
88:11 88:12

average
116:12
146:13

avoid 61:4
90:12

award 16:8
16:13
16:19
16:21 17:5
17:6 17:17
18:8 20:1
20:18

awarded 13:7

awards
15:10
16:12 20:8
24:1

aware 36:11
36:16 140:19
147:4 201:16
213:8 213:10

away 39:7
96:12
98:12 108:23
198:7 227:11

B

backed 55:10

background
85:14

bad 184:14
184:18

badges 10:11

BAE 203:16
211:5

bag 176:12
201:14

Bailey
79:10 79:10

balanced
143:22

ball 33:14
33:16

ballet 117:18

ballot 9:12
9:13 27:15
27:17 30:6
30:7 58:7
58:9 68:5
68:7 72:14
72:16 82:3
82:4 83:21
83:23
87:16
87:17 113:20
113:21
117:18
120:23 121:1
122:7
122:8 124:11
136:14
136:15 162:7
162:9 174:1
174:3 178:18
192:3 196:12
207:8
214:3 214:18
218:22
231:22
231:23
231:23

balloted
178:2 191:14
195:19
206:17 218:3
235:13

ballots
9:15 27:19
117:20
122:10

Baltimore
21:20 21:21

Banner 43:3
44:9 47:22
125:10 128:7
128:8

barely 75:3

barrier
123:24 129:1

barriers
124:21

base 96:13
98:10
99:14 106:21

based 9:6
10:3 27:9
27:23
33:21
52:10 54:6
62:7 62:20
63:14 65:4
77:4 80:21
85:13
88:19 124:16
152:8 168:13
178:1 190:13
191:13
191:16
194:24
195:18
195:25
206:16 209:7
214:3
214:6
218:3 218:10
222:5 235:12

basic 175:4
217:13

basically
98:19 99:7
131:6 194:12
228:16
236:24

basis 45:3
45:8 75:25
139:23 167:5
185:24

bathroom
84:15 85:1
85:6 85:22
85:25 87:6
88:6 88:25
90:9 90:21
91:8 91:12
91:23 93:2
93:5 93:14
94:12
94:15
95:13
95:17
95:20
95:25 96:2
96:4 96:11

97:17 98:7
99:11
99:15
101:4
101:9 104:8

bathrooms
99:3 103:15

batteries
141:2
145:5
151:7 158:3

battery
138:11
140:24 141:1
151:13
151:19
153:21 154:3

Bay 5:20 6:16
25:24
25:24
26:12 26:21

Bay's 6:7

became 22:19

become 46:1

becomes 13:15
126:21
199:24
201:16

begin 15:5
29:15 120:9

begins
11:21
44:25 165:11

behalf
23:23 55:2
78:11
79:11
84:14 84:25

90:20 91:1
102:3 107:13
113:3 114:11
114:22 153:6
158:22
168:20
169:24 170:1
221:22 223:2
239:14

behind 5:18
25:22 85:4
190:6

belief 53:6

believe 49:10
91:10 93:3
170:3 200:1

believes
137:23

bell 13:16
169:6
169:6 171:22
171:22 172:2

Bellis 5:5
15:16
16:22 17:8
17:19
18:10
18:20 19:9
20:4
119:25
160:17

benefit
115:21

benign 172:7

besides
62:7 122:6

best 36:15
42:8 63:2
63:20

104:4 137:23
144:11
144:12
151:15

better 53:2
94:16 108:23
202:3

beyond 16:7
50:20
50:24
51:16 53:3

biggest 226:8

bike 155:19

Bill 97:9
103:3
106:6 121:10
121:14
125:18
130:12
145:17
145:17
180:17
183:17 186:3
192:17
196:25 202:7
208:3
215:7 219:11
223:1 226:15

Bill's 131:21

Bish 111:5
111:5

bit 20:6

blanket
190:18 195:4

Bloc 99:21
99:21

blocking
188:5 188:5

board 33:6
184:8

Bob 38:13
78:10 122:10

Bobrick 93:22
97:10 106:7

body 38:16
39:10 234:12

bolts 86:1
86:4 92:7
92:16 100:13

Boston 10:22

bother 234:7

bottom
92:21 134:25
159:5 204:2

boxes 225:19

brackets 96:7

Brackett 43:2
43:3 43:13
45:13
47:22
47:22
125:9 125:10
125:25 128:6
128:7

Bradley 154:9
154:10

brand 40:17

breach
30:22 31:5
31:7 34:23
35:2 35:14
37:8 37:11
38:2 38:5
39:14 40:8

break 119:23

breakers
143:3
breaking
151:20
breath 199:5
Brian 200:6
228:1
brief 85:14
Bringing
225:22
broad 164:20
broadly
165:19
brought 34:15
41:12 80:4
144:6 144:10
183:24
Bruce
114:11
114:22
Bryan 137:2
137:11
bucket 158:5
building
18:22
20:25
23:15
23:18 34:6
46:3 47:7
74:12
88:23 123:14
126:16
128:18
131:25
176:10 180:7
181:10
190:15 195:1
199:8 199:16
199:21
201:23
208:11
208:13
208:18
215:16
217:11
219:18
222:19 223:8
223:25
224:20 225:1
225:2
225:3 225:18
227:2
231:8 231:14
231:14 232:4
235:10
buildings
33:22 34:2
36:5 36:8
40:17
50:11
52:24 128:10
150:22
174:25
181:13 190:5
205:25 206:3
210:14
215:16
215:21 217:9
217:14 221:9
222:9
225:4
226:2
227:6 227:19
227:21
built 40:17
184:16
215:16
bulletin
153:25
bunch 89:15
233:15
burden 45:7
45:11 48:1
burn 61:10
burner
85:19 101:16
burns 116:5
118:10
business 8:17
19:1 25:17
145:19
146:10 153:9
168:23
171:14
businesses
147:16
button
42:17
49:15 57:7
67:2 71:5
81:2
111:18 112:9
119:7 172:22
188:25
193:20
204:15
211:25
216:10
220:10
230:15
238:10
buying 183:12
bypass 33:16

C

CA 100:16
cable 149:2
149:4
149:8 149:20
149:20
149:25
cables 150:6
calculations
33:1
calorimeter
182:23 183:5
CAM 30:20
43:4 47:23
58:20 75:5
90:11 111:17
121:11
121:21 131:3
137:21
139:19 145:2
145:20
147:23
150:13
153:10 163:9
163:19
163:20
174:23
179:15
179:24
189:17
189:21 190:7
213:2
213:3
225:1 232:19
238:22
camera 14:16
CAMs 24:16
28:6
139:21 144:6
144:10
144:19
144:22
145:13
224:12

canopies
147:22
canopy 138:12
cans 183:13
183:13
cap 32:20
43:19
43:20
43:22
43:24 44:6
44:16 45:25
capabilities
37:12
50:12
50:21
50:24
51:17 52:8
52:14 53:8
54:1 54:5
54:6 54:15
capability
53:4 53:18
55:24 145:10
capped 45:22
caps 44:4
44:19
45:18
46:19 47:8
47:11
48:15
48:16
48:18 48:20
captures
14:16
Caputo
38:11
38:12 38:13
care 34:20
36:17
37:21 42:9
careful 158:2
cargo-mounted
141:25
Carolina
19:11 20:9
20:11
carriers
150:24
cars 146:24
156:2
156:3 158:3
Carson 173:15
173:17
177:11
188:15
188:17 191:5
191:8 193:14
193:16
195:10
195:12 206:7
206:9 211:19
211:21
213:21
213:23 216:4
216:6 217:21
217:23 220:3
220:5 221:23
221:25 230:9
230:11
case 59:7
59:17
59:25
60:13 61:9
61:13 63:7
63:16 64:6
64:7 64:16
75:15
101:4 143:25
175:11
185:15 237:8
cases 74:12
cast 9:18
13:6 26:24
29:8
Casualty 21:9
catastrophic
37:23
38:21
41:19
118:8 171:13
catastrophica lly 47:8
catch 151:8
151:13
catching
74:15
categorize
171:1
category 33:9
163:25
163:25
165:10
167:25 168:6
cat's 201:13
caught
129:6 199:5
cause 43:21
44:7 44:19
45:5 56:12
61:7 65:11
66:8 92:13
93:10 153:20
caused
47:10
47:13
47:15 65:7
Ceco 20:23
ceiling
83:7 83:14
84:5 85:8
86:9 95:21
101:11
106:12
106:14
106:15
cell 5:21
26:1
center 6:10
13:17
14:15
14:18
14:21
15:15
26:16 29:12
ceremony 24:2
certain 28:13
33:22
45:21
69:21 125:17
131:12
certainly
188:1
224:9 224:18
225:12
certification
8:14 24:20
certified 7:3
7:10 7:16
7:23 8:2 8:8
8:12 8:18
8:22 12:2
12:5 14:6
24:11
24:16 28:5
28:11

30:17 43:1
49:22
57:15
67:13
68:16
71:21
72:24 73:3
81:10
82:15
82:16
82:24 83:2
84:9
112:20 114:9
119:15 120:7
120:12 121:8
135:19
136:25
153:10
154:18
155:25
159:12
159:22 160:4
161:4
161:7 162:15
162:17
162:20 163:3
163:6 170:13
173:11
174:10
174:15
179:24
189:12 194:7
205:2
205:6 212:13
216:22
220:22 221:2
231:4
231:7
232:7 238:21

cetera 165:22

chair 12:6
15:12 18:1
19:3 19:3
19:20
19:21 21:8
21:15
21:16
21:18
21:19
21:24
22:11
22:14
22:20
22:22
22:23
22:25
23:10
23:10 24:4
24:8 29:19
38:12 43:2
49:25 50:9
57:20 79:1
79:3 93:21
108:18 113:4
120:14 125:9
127:16 128:6
129:14
134:14
135:24 148:7
150:16
158:21 160:6
161:22
166:23
169:23
173:16
177:23
191:10
195:15
206:13
213:25
217:25 222:2
227:14
231:11 235:6
235:8 235:10
236:23

chairman
77:24 153:4

chair's 67:18
81:16 83:9

challenges
150:22
184:25
192:11
192:21
196:20 201:1
215:1 215:14
219:5

challenging
41:20 192:25

chamber
165:15
165:20
165:21 166:1
166:3

chambers
163:22 164:1
164:11
164:18
164:24 165:2
165:20
167:20
170:17
170:20
170:24 171:2
171:14 172:6

chance
122:5 200:11
210:19

change
53:15
62:10 63:11
63:14
63:14 64:5
64:8 64:24
65:3 65:4
70:7 89:24
103:24 104:1
109:22 110:5
117:13 128:3
129:17 130:3
130:3 131:12
145:1 164:15
235:25

changed
169:14
169:17

changes 96:24
103:24
124:18
125:16
127:25
144:13
144:25
165:13

changing 99:3
169:18

chapter
89:2 89:9
127:1 137:24
138:4
140:2 141:15
142:12
142:21
143:18
143:18
143:25
144:12
145:12
148:10
148:25
157:16
165:18

166:17
166:24 168:2
168:5 175:13
177:14 188:3
190:11
194:21
227:20 228:8
237:16
237:17

Chapters
175:17

character
175:19

charge 139:21
142:24
147:20
147:23
149:23
150:17 160:7

charged 32:16
138:15

charger 147:6
149:2 149:12

chargers
154:11 155:1
157:8

charges 146:3

charging
138:10
138:21
139:11 140:4
140:8 140:15
140:25 141:7
141:9 141:12
141:20
141:22 142:2
142:4 142:13
142:22 143:5
146:1
146:2
146:6 146:16
146:20
146:22
146:24
146:25 147:2
147:17
147:18
148:11 149:1
149:5 149:15
150:4 151:18
151:21
151:22
151:23 154:5
155:9 155:20
156:6 156:11
157:6 157:12
157:14
157:15
157:22 158:7
158:13
158:15

cheap 59:11

check 51:21

chemical 22:9
62:8 62:20

chemicals
57:19
57:24 58:1
58:15 59:7
61:24
63:11
64:20 64:21

Cheong 150:16
150:17 160:6
160:7

chiefs 225:2

Chip 177:9

Chism 30:18
30:19 31:4
39:12
39:21
39:21
39:23
39:23 40:1
40:4

choose 89:5
188:8
188:8 237:10
237:12

choosing 29:6
90:6 103:16

chose 54:16
80:6

chosen 102:13
107:7

Chris 163:8
163:17

CHRISM 39:18

Christina
156:18

Christopher
68:20 118:1

Cigarette
81:13
81:21 82:11

cinema 78:4

circumstances
35:18
45:21 206:2

cite 147:24

citing 235:22
236:7

City 145:7
153:24
199:23

civilian
180:12

clarification
124:18
131:11
232:24

clarity 95:16
164:20

class 46:17
59:15 60:4
62:3 62:6
138:24
148:12
148:15
148:16
149:10 150:5
150:8 165:19

Classificatio n 81:13
81:20 82:10

classified
141:24 142:6
142:14

Cla-Val 30:19
32:22 39:24

clean
123:22
130:22
156:24

cleans 190:9

clear 48:12
48:13
85:11 100:10
100:18 108:9
131:21
137:22 165:6
181:3
181:4
187:4 232:24

234:3
clearly 33:16
130:5 203:5
client 121:16
clients
121:17
121:21
clinician
170:14
close 5:12
13:20
14:17 29:9
32:6 32:7
32:9 35:9
42:22
44:11 67:6
71:10 81:5
111:20
112:13
119:10
135:14 204:5
closed
29:10
42:23
49:19
57:10
135:6 135:15
159:10
159:18 173:2
173:3
189:5
189:6 193:25
194:1
204:7 204:20
204:21 212:6
212:7 216:15
216:16
220:15
220:16
230:20
230:21
238:15
238:16
closely 99:15
closer 126:12
closing
25:5 33:13
75:2 119:1
code 11:18
18:20
18:23 21:1
21:14
23:15
23:18
28:25
64:25
67:17
67:22 68:3
68:10
68:13
73:21
75:13
80:10
88:23
88:24
103:9
115:8
117:2 135:21
136:4 136:11
136:16
136:21
137:25 139:1
139:5
139:8 139:12
139:17 147:7
147:25
161:20 162:1
164:23 165:3
165:12
165:18
165:24
173:14
173:20
176:24
177:17 178:4
178:12 179:5
179:23 181:1
181:2 182:18
187:14
191:22 193:3
196:6
198:3 199:24
200:13
202:20
206:20 207:2
207:19
208:17 209:7
214:12
215:17
215:22
218:16 223:9
223:15
225:14
225:15
225:20
226:21
227:13
227:24
229:23 231:9
231:14
231:15 232:4
233:5
233:9 233:11
234:19
235:10 237:4
237:14
237:15
237:17
codes 11:3
16:18 44:8
74:8 89:9
127:6
140:6 140:14
166:10 184:8
184:16 201:7
203:10
228:11
codify 50:10
collaboration
35:18
collapse
98:19
collect
183:14
collection
175:14 176:6
206:4
Colonial 22:2
combination
35:12
44:13 44:20
combine 61:3
combined
162:15
combines 7:23
190:24
combustible
18:13
19:12
19:13 22:3
22:5 22:6
59:14 60:3
60:10 63:6
74:5 142:9
176:1 188:4
combustibles
151:6 175:23
209:14
209:14
229:25 230:1
comfortable

29:13
coming 104:22
126:4
172:9 225:14
Command
6:10 26:15
comment
49:1 58:22
59:24 60:6
63:4 66:15
67:1 73:5
73:22
75:23 76:8
76:10
76:15
76:17 77:3
78:18
80:17
80:25
87:13
87:16
88:14
88:20 98:2
105:3
119:1 124:17
130:14 137:4
137:7 137:15
137:19 139:3
163:13 167:4
167:14
167:16
167:23
167:24 168:6
168:11
171:19
171:23
172:14
172:20
174:18 178:3
178:23 181:9
186:6 188:11
188:24
189:23 190:3
190:8 193:12
193:19
194:17
195:20
204:14 205:7
205:10
206:18
207:12
211:17
211:24
212:22 216:2
216:9
217:4
218:5
220:2
220:8
221:4
222:7
230:8 230:14
232:12
235:18
235:24 236:7
236:12 238:2
238:9
comments 15:1
41:25 49:3
56:24 57:1
66:17
67:10
70:25 76:3
78:24
80:19
87:16 103:21
106:9
117:7
119:3 124:16
141:18 167:1
167:9 172:16
178:20 186:6
186:9 188:16
188:20
190:14 192:7
193:15 195:1
196:16 197:8
205:16
208:23 209:4
211:7 211:20
214:22 216:5
219:1
220:4 222:15
223:4 230:10
235:1 238:5
commercial
147:12
commissioned
35:15
commissioning
120:17
126:24
committed
158:10
committee
7:19 7:22
8:13 9:12
12:7 12:8
14:14
15:10
16:12
16:12
16:13
16:20
16:24
16:25 17:6
17:10
17:11
17:16
17:21
17:23
17:25 18:3
18:8 19:20
20:1 20:7
20:21
21:16
22:16
22:17
22:18 23:8
23:19 24:4
24:8 24:17
24:25
27:14
27:15
27:17
29:21 30:1
30:6 34:13
34:16
34:23
34:25
36:10
36:16
37:23 38:4
38:17
43:13
43:19
45:15
45:17 46:8
46:15 48:5
49:6 52:20
52:22
53:22
54:16
57:24 58:4
58:8 59:17
60:5 60:12
61:5 61:11
61:14
61:23 62:1
62:11 63:3
63:13
63:20 66:9
66:20
67:21
67:25 68:5

69:5 70:3
70:14 72:4
72:11
72:15
73:21
75:10
75:20
75:24 76:5
76:7 77:1
77:12
77:19
77:24 78:1
79:15
79:22 80:6
80:13
80:20
81:19
81:25 82:3
83:12
83:18
83:22
86:25 87:3
87:8 88:3
88:4 88:5
88:7 88:10
88:10
88:11
88:15
88:16
88:17
88:18
88:19
90:25 91:1
94:21
96:22
97:12
97:15
97:20
97:22 99:6
105:8
107:5
109:5 110:21
112:1
112:4
112:6
113:3
113:7 113:13
113:20
116:22
117:10
117:17
120:17
120:23 122:4
122:6
122:7
122:8 122:10
124:5 124:10
124:17
127:18
127:20
127:22
127:23
129:15 131:4
131:5
131:6
136:3
136:8 136:14
137:23 139:6
139:8 139:14
140:2
144:1
144:5 144:14
152:21
157:23
157:24
161:24 162:4
162:18
166:12
166:16
166:17
166:19
166:24 167:5
167:11
167:13 168:9
169:3 169:10
169:25 170:2
170:4
170:6 173:19
173:23
176:20
176:22
176:23
177:14
177:15
177:21
177:25 178:2
178:7
178:9 178:13
178:24 179:4
180:23 182:1
187:17
188:18 191:9
191:12
191:14
191:15
191:19
191:24 192:6
192:9 192:19
195:13
195:17
195:19
195:24 196:3
196:8 196:15
196:18 201:2
206:11
206:15
206:17
206:22
206:24 207:4
207:13
207:18
208:15
213:22
213:24 214:2
214:4 214:5
214:9 214:14
214:21
214:24
217:22
217:24 218:1
218:4
218:9 218:13
218:18
218:25 219:3
221:24 222:1
222:4
222:6 222:14
222:17
223:10
231:14
231:18 233:4
234:21
234:24 235:2
235:6 235:11
235:13
235:21 236:6
236:23

committees
16:15
38:20
162:8
174:2 231:22

committee's
24:23
30:12 42:3
42:12
43:18 44:6
45:9 53:6
58:13
68:12
69:16
72:20 82:9
84:3 98:16
114:3
121:5 136:20
139:25

162:13 164:3 166:16 169:8 174:7 177:10 177:13 181:7 190:9 191:6 195:11 206:8 232:3 234:24 234:25

Committees 18:12 18:22 19:1 19:12 19:16 20:12 21:1 21:5 21:13 21:22 22:3 22:8 23:1 23:14

common 90:10

commonly 95:25

commonly-used 165:16

Communication 23:4

community 46:6 158:9

companies 147:2 201:10 201:22

company 12:14 12:17 19:10 21:10 21:20 23:12 30:19 39:24 145:22

compared 226:22

compartment 129:20

compartmentalize 95:22

complaints 154:15

complete 7:4 11:18 28:25 32:18 140:13

completed 10:23 69:17 157:7

completely 95:21

completion 127:11

compliance 127:6 127:12 132:6 138:4 190:16 195:2

compliant 199:16

complied 201:20

complies 60:9

comply 60:7 60:14 61:19

complying 59:16

component 70:18 126:16 129:1

components 37:13 37:17 70:12 70:16 81:14 81:21 82:12 124:20 133:24 133:25 134:9

compromises 180:6

concentrations 165:21

concept 51:8 55:7 129:23 167:22 167:23 167:24 209:25

concern 33:13 33:20 35:1 41:13 59:18 177:4 180:1 198:1 205:17

concerned 5:15 25:19 96:21

concerning 184:11

concerns 16:4 33:12 43:19 103:19 117:8 123:8 175:2 184:20 213:5

concessions 224:15

conclude 13:18 239:12

concluded 151:12 151:16

concludes 24:1 57:14 67:12 71:20 81:9 83:2 112:19 135:18 161:3 173:10 231:3 239:15

concluding 161:3

conclusion 24:18 69:15 96:21 99:9

concur 38:20

concurrent 44:2

condition 205:21 205:22 206:1

conditions 138:13 190:15 195:1 213:13 213:14

conduct 7:8 13:11

conducted 87:18 91:6 101:21 107:19 195:8

234:4

conducting
8:17 25:17
75:14

cone 182:23
183:4

conference-style 203:12

configuration
92:9
101:15
126:19 133:1
133:2

configurations 91:16
133:3

configured
36:19

confined
115:24

confirmed
151:17

conflict
123:2 127:15
211:15 235:3

conflicting
122:15
186:17

conflicts
36:7
100:20
100:24
166:20
177:16

conformance
127:4

confuse
106:10

confused
186:21
225:10

confusing
85:11
91:15
92:22 93:6
98:22
100:6 105:21
106:9
108:4 108:10
110:18
122:19
132:10
132:10
133:14

confusion
56:12
92:10
92:13
93:11
109:3
165:7 215:23

conjunction
9:19 26:25

Connecticut
23:13

connection
43:14 44:3
44:5 45:18
45:25
46:15
46:25
50:16
50:19
50:23
51:12
51:22 52:2
52:15
53:19 56:1
56:4 56:11
115:18 116:1
118:20
142:15

connections
44:11
54:14
54:21 115:5

connective
47:14

connector
115:24
149:22

connectors
149:3

consensus
9:21 15:20
27:1 35:1
42:4 53:6

consequences
74:16

consequently
47:11 165:7

consider 49:3
57:1 71:20
80:6
119:15
131:24
233:19

considerable
180:1

consideration
7:10 7:25
8:18 28:12
35:19 54:4
57:15
71:20 81:9
83:2 109:11
112:20
135:18
139:19 161:4
164:5 165:14
173:11
178:11 185:5
188:2
188:9 191:22
196:6
207:1 209:12
214:12
218:16
224:20 231:4

considerations 45:11
67:13 165:1

considered
36:8 49:7
53:22
82:23
88:25 132:10
134:7 160:24
163:2 239:3

considering
80:7 180:9

consistency
232:22

consistent
51:1
108:21
142:25 164:9
178:8 178:11
191:18
191:21 196:2
196:5 197:16
206:23 207:1
209:23 210:6
214:8 214:11
218:12
218:15

233:21
234:18

consisting
30:3 58:6
68:2 72:13
82:1 83:20
113:15
136:10 162:6
173:25 179:2
191:16
195:25
207:17 214:6
218:10
222:12
231:20

constructed
59:11 105:22

construction
123:12
165:22 200:1
205:17
205:18
205:23
205:24 206:2
208:9 209:11
209:22
209:23 210:2
210:4
213:4 215:12
217:11
217:16
217:18
217:19
219:16
219:21 221:8
226:1 226:12
231:8 231:15
232:4

consultant
90:24 91:6
106:7 234:14
237:9

Consultants
18:21

consulted
96:24

consumer
20:10 177:2

consumption
127:19

contact
118:11
118:14

contain 62:25
100:7 233:25

contained
34:19 65:15

container
70:11
116:2 116:18
118:19
176:11
176:18
181:11
181:12
181:15
181:16
190:24 213:5
227:6

containers
19:15
69:20
69:23
70:18
115:7
115:9 115:11
176:14
176:15 191:2
209:13 213:6
226:4

contains
31:22

contaminate
64:23

contemplate
165:4

content
77:3 168:10

contents
19:19 175:18

contingent
69:8

continue
10:20
71:19
100:3 123:12
161:13
185:24
209:24 210:6

continues
14:8 17:22
23:9

continuing
10:18
89:23 115:3

continuous
16:14 45:8

continuously
175:9

contracting
46:5

contradict
91:17

contradiction
92:9

contradicts
51:9 92:5
101:13

contribute
175:23

contributing
65:11

contribution
9:20 27:1
83:6 83:14
84:5

contributions
16:9

control 30:22
31:5 31:14
37:2 37:8
37:12
39:15 40:8
41:12
41:17 123:25
130:19
130:25
142:18 143:3

controlled
128:22

controls
55:18 125:24
131:20
208:18

convenience
7:5 145:21
149:16
157:11

convenient
10:19 146:20

convention
7:12 7:12
8:7

conversations
158:2

conversion
113:25
146:18

Conversions
112:25
113:10
113:17 114:6

Conveying
22:4

cooking
128:19

cooperation
171:2

copies 190:25

cord 149:21

core 184:15

Corey 171:8

corner
85:17
85:20
92:22 101:17

cornerstone
143:23

correct 31:12
31:18
110:8
127:7 130:16
155:10
186:11

corrected
133:7

Correctional
23:20

correctly
110:12

correlate
126:3

correlating
12:8 17:21
18:22
22:15 76:6
161:24 162:4
166:12
166:15
166:16
166:19
167:12
169:25 170:6
170:8 173:19
173:23
177:10
177:13
177:13
177:15 191:6
231:13
231:18
234:23
234:24 235:2

correlation
27:15 166:20
177:16 201:2
235:3

correspond
201:18

corresponding
51:2 200:25

corridor
180:22
181:17
185:21 187:2
187:3
226:5 227:14

cost 52:4
56:17

costly 54:20

council
8:24 9:4 9:8
9:23 10:1
15:12
15:17
15:18
23:24 24:9
25:10 27:4
27:7 27:10
27:22 28:2
30:12
58:13
68:12
69:10
72:20 82:9
84:3 114:3
119:21 121:4
136:20
161:12
162:12 174:7
178:16
185:11
185:11
185:14
185:25
186:22 192:1
196:10 198:6
200:22 207:6
214:16
218:20 232:3
239:14

Council's
10:2

count 39:6
159:19

countless
15:24 16:1

country 33:22
154:12
156:13
183:15 201:6

couple
126:5
186:6 228:3

coupled
115:24

course 74:1
88:3

cover 96:3
96:16

coverage
87:10

covered 33:24
89:2

create 96:1
109:3 124:15
192:10
196:19
200:25
214:25 219:4

created 88:10
88:19 100:23
101:18
116:13 117:3
117:10
137:24 236:4
236:14

creates
36:6 165:7
175:5
176:3 200:17
205:22

creating
89:20
90:12 94:22

creation
165:10

credentials
8:9

credit 131:5

criteria
19:18 34:8
40:5 40:7
52:11
97:16
97:24
98:13
98:15 99:7
139:10
215:15

critical
37:13 55:7
92:12 126:6

cross 55:20

cross-section
43:16

Crowley 113:2
113:5
114:7 116:20
116:23
118:25 119:2

Cultural
17:10

current 33:10
93:25 101:21
102:24
104:18 105:9
105:14
107:20
109:19 110:4
117:2 117:14
137:17
165:24
190:15 195:1
209:8 235:16

currently
18:1 21:15
40:19
41:16 54:13
157:8 157:22
164:16 168:1
168:4
171:6
213:9 229:23

curve 35:23

customers
146:9 146:15
146:23 147:3
147:19

cycle 29:25
38:18 48:6
50:10 58:3
67:24
72:10
76:25
81:24
83:17 113:12
117:2 120:20
136:7
162:3 168:13
169:4 173:22
178:9 178:14
190:20
191:20
191:24 196:4
196:8 200:13
206:24 207:4
214:10
214:14
218:14
218:18
231:17

cycles 7:24
24:14 36:2

cylinder
116:14
118:17

cylinders
116:7
116:8
116:9 116:25
117:5
117:9 117:15

D

Dagenais 55:1
55:1
158:21
158:22
169:23
169:24

daily 176:19

damage
43:21 44:7
44:19 45:5
46:7 47:11
47:13
47:15 48:2
70:15

dangerous
61:4 61:18

D'Antona
17:17 17:19

Darren 41:8
48:10 54:11

dash 136:25

data 32:22
36:11
41:11
45:10
79:14 157:16
176:7

date 75:2
88:17 146:1

Dave 55:1
158:21
169:23

Dawe 184:6
184:6
203:2 203:2

Dawn 15:15

day 25:12
55:5
138:17
176:19

Daycare 21:2

days 9:8 9:13
9:16 27:11
27:16
27:20 146:25

DC 154:11

deadly 176:8

deal 145:5
145:5

dealing
74:4 90:8
205:17

dealt 144:24

death 65:7
140:20 147:5
170:24

deaths 145:8

debate 9:19
9:21 13:20
14:5 14:7
14:16
14:17
26:25 27:2
27:25
28:12 38:8
47:2 54:8
63:23
70:20 77:7
87:21 117:22
125:5
143:8 168:16

179:9 192:13 196:22 207:24 215:3 219:7 222:22 236:16 239:12

debated 24:12

debris 31:18

decades 165:17

decide 75:13 154:20 201:17 234:15

decision 49:8 155:7

decisions 10:2 24:24

declare 25:16 239:18

dedication 25:9

deem 13:10

deemed 75:25 167:6 169:1

deenergized 149:22

default 228:11

defeat 182:7 183:18

defective 141:2 224:1

defend 78:14

defer 166:22

177:19 188:17 191:8 195:13 206:11 213:23 217:23 221:25 235:5

deficiencies 165:11

define 95:12 102:17 168:6

defined 141:25 142:11 150:7 229:16

defines 141:23 148:25 167:24

definite 88:21

definition 64:7 89:21 126:8 129:16 142:2 168:4 228:7 228:18

definitions 126:5 141:13 141:18 141:21

degree 116:4 229:3

deja 200:12

Delaware 145:24

delay 25:11

delete 70:6 127:25 178:3 178:23 206:19 207:12

deleted 178:14 179:5 181:6 191:24 196:8 207:4 207:19 214:14 218:18

deletes 139:4

deleting 232:19

deliberation 143:24 155:4

delivered 157:1

delivery 187:6 227:8

deluge 32:23 33:14

demand 50:16 232:19

demanding 224:18

demonstrated 62:23 63:15

department 16:23 20:9 35:17 35:20 50:12 50:15 50:16 50:19 50:21 50:23 50:25 51:5 51:12 51:17 51:22 52:2 52:3 52:8 52:14 52:15 53:17 53:18 53:19 53:20 54:4 54:14 54:15 54:20 55:21 56:1 56:3 56:4 56:11 143:15 152:19 198:21

departments 225:3

department's 53:4 54:1

depend 34:2

dependent 146:19

deployed 35:20

derail 154:16

describe 124:25

described 141:16

design 52:11 56:13 142:22 164:25 165:15

designate

163:24

designated
10:13
82:21 160:21
162:25
238:25

Designations
112:25 113:9
113:17 114:5

designed
44:21 155:24
155:25

designee
11:23 12:6

designs 36:2

desired
32:2 96:2

desk 6:20

despite
20:3 165:20

detail
92:12 92:21

detailed 25:2
122:4 143:23

details
6:20 87:10
87:11 107:6

detection
224:16

detectors
132:24

Detention
23:19

determination
8:13 14:3

determination s 28:4

determine 6:9
24:19
26:14 35:7
44:1 139:9

determined
8:3 14:4
178:16 192:1
196:10 207:6
214:16
218:20
222:17
237:20

detrimental
35:2 236:9

develop
144:17

developed
15:25 16:3
87:9 179:2
191:15
195:24
207:16 214:5
218:9 222:12

developing
142:22
143:21

development
6:25 7:2 7:9
13:8 15:20
16:17 17:4
17:16 18:7
18:18
19:25
24:21 25:7
76:2 112:5
120:24
145:19
156:23
166:21 167:8
177:17 235:4

device
10:11
10:24
11:15
11:16
28:21
29:15
112:9 134:25
159:5 204:2

devices
6:24 26:23
28:22
44:21
52:10
164:7 165:16
166:8 167:19

devoting
29:14

diagram
100:11
100:11

dial 5:21
5:21 25:25
26:1

diameter
43:17
45:19 86:2
86:5

difference
33:6 211:3
217:11
219:14 221:8
221:13 223:6
225:24

differences
165:20
166:10

different
33:3 40:6
40:6 41:17
99:4 101:7
109:1 110:16
110:17
115:15
144:20 145:6
149:21
186:13
202:22
203:11
215:18
215:20
226:22
226:24 237:8
239:5

differential
31:21
31:22 32:2
32:10
32:11
32:14 33:5

differentiate
124:19

differently
147:12
219:19

difficult
41:15 102:10
103:14 155:7
192:23

difficulties
11:12

Dillon
90:18
90:19
93:17 107:12
107:12

dimensions
86:14

direct 116:13
118:11
127:15 175:7

direction
26:5

directions
6:1

directly 8:24
11:4 33:7
92:5 94:2
118:4 151:17

Director 95:4
145:18

Directors
184:8

directs 32:5

disabilities
6:17

disagree
43:24
65:24 128:25
154:17

disaster
200:3

discharge
19:17 69:6
151:19

discharging
70:17

disclosed
121:21

disconnect
115:4 115:17
118:20

disconnected
143:6

disconnection
118:4

discriminates
138:24

discussed
63:13
76:19 88:6
91:24 197:13

discusses
73:14

discussing
184:12

discussion
10:4 12:9
27:22
30:16
34:24 38:4
41:23
42:25
43:11
48:23
49:21 53:1
56:21
58:17 59:1
62:9 68:15
70:22
72:23 73:9
78:18
79:25 81:8
82:14 84:8
112:17 114:8
114:19
118:23 121:7
122:3 136:24
137:10 160:3
163:6 163:16
171:18
172:13 173:8
174:10
174:22
185:19
186:15
188:11
189:11 190:2
193:12 194:6
194:20 199:4
205:1 205:14
210:9 211:17
212:12 213:1
216:2 216:21
217:7
220:1 220:21
221:6
229:7
230:7
231:1
232:6 232:16
238:2 239:7

discussions
57:13
66:14
67:11
71:15
80:16
112:1 187:1

disintegrate
129:24

Dispatch 5:20
25:25

dispenser
69:6 70:9
142:7 149:14
152:4

dispensers
147:22
148:14
149:18

dispensing
70:8
135:22 136:4
136:11
136:17
136:21 138:9
140:4 142:8

display
14:8 14:18

disservice
34:2

distance
96:12

distinct
15:11 24:9
46:23
120:6 165:20
235:9

distinguished
16:17

distributors
114:25

division
148:13
148:16
149:11 150:5
150:8

document 30:8
58:10 68:8
72:17
83:24 113:22
121:2 121:24
122:16
126:25
136:16
142:12
162:10 170:9
174:4 231:24

documentation
63:10
63:15 98:16

documented
44:1 44:14

46:5
documents 7:14 82:5 126:3
dollars 47:15
Domitrovich 153:4 153:5
done 11:6 23:21 75:8 89:4 98:3 98:24 129:6 133:8 154:19 157:24 177:1 181:20 181:23 197:17 202:1 209:24 219:23
door 20:23 126:12 126:20 126:21 128:25 129:13 129:13 129:18 201:10 227:10
doors 21:7 23:16 94:7 94:12 95:24 129:5 133:7 187:7
Doug 122:10
Douglas 55:2
download 11:5 11:8 28:16
downloading 10:25 11:4
downstream 31:7 35:16 70:12 70:16
dozens 91:7
Dr 16:21 16:22 17:2 24:7 58:18 59:1 59:3 61:21 65:20 66:13 72:25 73:1 73:9 73:10 75:18 76:11 76:16 77:10 78:6 78:12 78:20 79:25 80:2 87:25 90:14 90:25 103:1 103:3 104:10 104:17 129:11 153:16 182:14 197:11 209:19 232:9 232:17 235:14 236:20
draft 29:24 29:24 30:2 30:2 38:18 50:18 50:22 51:4 58:2 58:2 58:5 58:5 62:2 63:4 67:23 67:23 68:1 68:2 72:8 72:9 72:12 72:12 76:19 81:23 81:23 82:1 82:1 83:16 83:16 83:19 83:19 87:4 87:8 87:13 88:5 88:18 97:13 113:11 113:12 113:14 113:14 120:18 120:19 124:9 136:6 136:6 136:9 136:10 144:8 144:9 144:24 144:24 157:19 162:2 162:2 162:5 162:5 164:5 167:17 173:21 173:21 173:24 173:24 178:5 192:8 196:17 206:20 214:23 219:2 222:16 231:16 231:16 231:19 231:19 235:18 235:19 235:20 236:3 236:5 236:13
drafts 157:21
drained 31:10
drawings 127:4
drip 89:17
drive 147:20
driver 140:12 141:10
drops 116:4
dual 55:24 55:24 55:25
due 32:22 32:23 43:20 62:13 104:17 115:4 140:22 146:11 147:5 147:7 151:5 152:6 182:6 201:23
duplicate 159:23
duplicative 148:1
during 6:23 8:1 8:19 10:20 12:1 14:16 25:2 26:22

32:15 35:6
45:23 63:4
69:3 69:4
87:12 94:4
117:2 123:12
128:19
140:25 153:9
157:19
168:12 176:7
235:17
235:19

Dust 22:3
22:4 22:5
22:6

duties 161:13

Dwayne 197:20
200:11

dwelling
175:19
175:20

dying 74:14

E

E119 233:1
233:15
233:23
233:25 234:5
234:10 237:3
237:3
237:5 237:14
237:21

E3082 74:24

E5 89:20

E84 60:4 89:4
89:6 89:8
89:13
89:18
89:22 89:24

E86 89:24

earlier
101:14
157:20
183:23
186:12
194:24 195:5
198:16
217:10 223:5

early 74:15
127:16
146:25

ease 14:23

easiest
122:17

easily
32:12 182:6

easy 143:4

Eaton 153:5

Ed 143:12
152:17

edge 95:24

edges 101:13

edition 36:24
45:1 50:13
58:10
62:15 68:8
72:17 82:5
83:24
88:13
93:15 101:19
113:22
116:24 121:2
122:21 131:2
136:15
137:17
162:10
165:24 174:4
182:8 215:17
215:22
231:24

editions 37:1
139:17

editorial
87:15 121:25

education
69:9 128:12

Educational
21:2

effective
49:11 123:13
124:1 176:4

effectively
55:22 154:24

effects
35:2 148:9

efficient
36:3 61:1

effort
10:18 46:7
50:10 139:20

efforts
15:5
175:24
179:20

egress
23:15
129:5
175:5
175:9 175:21
175:23
175:25 176:4
180:4
181:3
181:4 184:14
184:17
186:23 188:4
188:6 205:19
209:10
211:14
227:15 230:1

eight 43:17
233:22

eighth
46:22 48:4

eighth-inch
45:4 47:24

eight-inch
44:18

either
12:11 29:6
55:9 76:4
89:4
106:20 150:3
167:10
210:19

Elbert
16:21
16:22 17:2

electric
21:20 140:23
147:14 149:1
149:5
149:6
149:9
151:1 153:20
153:21 154:2
154:5 155:19
156:5 156:10
156:24 157:1

electrical
17:25 22:9
22:21
126:9
137:3 137:12
138:2 138:25
139:15 147:9
147:25

148:20 148:22 153:6 153:8 157:2

electrically 44:17

electric-driven 147:14

Electrify 154:10

electrocution 138:20 140:21

electron 146:19

electronic 10:21 14:12

electronically 8:11

element 25:6

elements 237:20

elevated 69:23

eligible 7:25 28:20 124:12 178:19 192:4 196:13 207:9 214:19 218:23

eliminating 116:17

else 61:16 135:17 153:18 226:19 234:11 237:12 237:15

EMC 21:10

emergency 5:16 5:17 5:19 5:23 6:4 6:19 18:3 23:2 23:4 25:21 25:23 26:2 26:8 143:1 143:4 158:12 175:12

e-mobility 158:6

emphasized 74:21

employee 116:12

employees 116:6 118:8

employer 169:11

enable 36:2 36:3

enabling 53:8

enclosure 95:17 123:22 130:21

encountered 151:22

encourage 39:9 52:16 86:12 99:16 105:24 107:4 122:9 131:15 137:14 139:2 139:6 152:12 169:20 170:9 181:5 181:25 185:7 187:10 187:16 202:24 208:18 215:24 219:22 224:1

encouraged 75:12

encourages 15:21

encouraging 226:13

encumber 37:17

endeavor 180:12

end-to-end 132:21

energies 146:8

energized 149:25

energy 156:23 156:24

enforce 185:23 192:23

enforced 182:6 185:7

enforcement 164:10 192:10 192:22 192:25 196:19 198:1 214:25 215:14 219:4

enforcers 15:22

enforcing 209:7

engine 53:17 70:8 70:17 115:12

engineer 84:13 91:4 108:5 156:19

engineering 6:7 22:14 26:12 90:19 90:23 91:5 95:4 102:22 107:12 165:15 168:20 169:7 171:23 180:10

engineers 56:13 105:17

enhanced 74:23 75:1

enhances 53:7

enriched 166:1

ensure 16:2 32:12 40:19 143:6 164:6 209:10

ensures 182:23

entered

168:12

entering 8:10

entertain
13:25

entertained
8:4

entire 10:3
25:10
27:23 80:5
80:12
96:17 239:14

entirely
155:4

entirety 7:20
178:24
207:13

entitled
150:25 237:9

environment
61:19
64:21 118:7

environments
64:18 74:6

equal 44:23
123:12

equally
123:13

equals 229:15

equipment
22:9 35:19
64:12
93:23 114:24
115:12
138:25 140:7
141:5
141:9 142:18
142:18 147:9
148:20
148:22
149:15
151:24
155:11
155:13
155:22
155:25

equipped
35:14 37:7

equivalency
233:6 236:1

equivalent
166:2 232:25
233:2 233:22
234:5 234:10
234:11
234:15
234:16 237:1
237:11
237:23

ergonomic
116:12

erode 129:25

errors 87:18

e-scooters
158:7

especially
64:17
102:9 176:1

ESS 142:17
142:19

essence 56:1

essential
25:6 60:19
129:23 142:3

essentially
85:18 85:24
138:6 149:14
187:13 201:8

establish
7:13 36:16
40:5 40:7

established
8:17 13:5
34:8 40:16
40:23
42:10 87:4

establishing
142:5

et 165:22

EV 138:21
139:10 140:4
140:6
140:7
140:8 140:10
140:15
140:18 141:3
141:12
141:16
141:20
141:22 142:2
142:3 142:13
142:15
142:16
142:18 143:2
145:5
145:8
146:1
146:6 146:21
146:25 147:2
147:2
147:6 147:17
147:18
148:10 149:2
149:3 149:12
149:15
149:17
149:23 150:1
150:11 151:7
151:17
151:23
157:22 158:7

evacuate 5:11

evacuation
5:24 6:12
6:13 6:19
6:21 26:3
26:10
26:17 26:19

evaluate
131:13
172:10

Evaluating
83:6 83:13
84:4

evaluation
6:11 26:16

evening 176:7

event 5:11
5:19 10:8
10:16
13:14
24:10
25:23
47:25
94:11 203:12

events 15:2
33:24
62:11
62:12 65:9
65:9 66:21
140:25
153:23
153:24
203:12

everybody

29:4 29:5
185:7 203:10
225:3

everyone
52:16 105:24
110:19
119:25
224:14
239:10

everyone's
28:13

everything
41:4
110:17
121:23
237:17

Everything's
154:19

evidence 44:1
44:14
77:22 183:22

evolutionary
166:8

evolved 36:1

EVs 138:15
145:6
147:3
151:8 151:12
151:25 157:4
158:8

exact 38:18
137:17 198:2
209:21

exacting
37:21

exactly 51:12
108:10
139:12 208:7

example 91:20
92:13 128:17
130:18

examples
74:11
77:22
100:9 134:5

exceed 151:21

exceeded
50:11

exceeding
226:5

except 176:11
178:10
191:20 196:4
197:14
206:25
214:10
218:14

exception
53:23 141:22

excess
35:13
69:18
98:13 116:10

excessive
43:24

exchangeable
116:25 117:4
117:15

excuse
15:25
20:24
39:16
52:23
60:24 114:10
148:16 217:1

exemplary
16:14

exercised
54:3

exist 101:8
165:22 168:4

existing
140:6
147:7 147:22
147:24
164:19
164:23 165:3
205:18
205:23 206:1
206:10
208:11
208:17 209:6
209:11
209:22 210:2
210:14
213:13
213:17
213:18
215:21 217:9
217:11
217:13
217:16
217:18
217:19
219:15
219:20
221:11
221:19
221:20
227:19
227:21

exists 74:4
75:7 90:7

exit 5:17
6:14 25:21
26:20

exits 5:10
5:17 25:20
180:5 188:5

expansion
118:12

expensive
89:7

experience
11:12 91:2
94:5 96:18
146:21 171:3
171:4 181:22
187:16

experiencing
99:2

experimental
85:13 102:15

expert 96:23

expertise
16:2

explain 14:1

explained
35:4 42:5
51:8 88:23

explaining
95:14

explains
51:12

explicitly
60:11

explosion
20:13
22:10 138:20
154:1

explosive
59:19
59:21
60:16 61:7

61:12
61:16 66:10

Exponent 47:5
84:13
84:24 102:3

exponentially
138:13

exposed 89:17
94:3 94:13

exposure 98:7
147:10

express
119:16 161:8

extend 25:8
85:7 85:22
89:14 95:21

extends
148:13
148:17

extension
149:21

extensive
62:9
124:24
130:15 144:4
144:12

extent
150:5 175:11

extinguished
65:16

extra 150:6

extracted
141:21

extreme 41:13

extremely
41:3 41:15
41:20 108:3

F

facets 15:21

facilities
17:21
22:16 23:2
23:20
71:25 72:7
85:4 86:4
135:22 136:5
136:12
136:17
136:21
140:24
161:19
161:25 162:1
166:13

facility
39:13
138:8
140:5 141:10
168:1
168:7 201:13

fact 36:14
37:25
38:22 66:5
74:17
88:11
89:20 131:23
132:9
134:3
138:2 143:17
181:14
187:12 193:8
209:5

factor 44:25

fail 33:19
33:20
46:11
51:25 103:15
108:13

failed 47:8
47:11 67:9
137:16 173:7
189:10 194:5
204:25
212:11
216:20
220:20
238:20

fails 9:11
10:17
14:14
27:14
42:25
49:20 81:7
112:16
122:18
122:23

failure 41:14
41:19
43:22 44:6
51:7
183:25 184:2

failures
43:20
47:10 132:19

fall 7:24
24:13
24:24
29:25 58:3
67:24 72:9
81:24
83:17 113:12

Fallen 179:16
179:19
224:11

false
129:25 177:1

familiar 7:11

familiarize
5:9 7:7

fast 74:22
151:18
154:11

fast-charging
157:5

fastened 92:3

fastener
87:10

fastening
101:12

fatalities
172:5

fatigue 46:12

favor 12:15
55:3 60:21
65:21 80:5
81:6 94:21
99:22
109:2 111:21
112:15 118:2
127:25 148:8
150:13 203:3
208:6

FBA 74:21

feature
52:5
123:17 129:3
131:25
219:22

features 21:3
55:11 122:24
123:5 123:10
123:11
123:21
124:21 125:3

125:14
125:17
208:13
235:11
235:21 236:7

February
21:11

feed 39:4
39:4

feedback
97:24

feeding 56:4

feeds 52:2

feel 61:13
94:15 95:14

feet 86:19
149:3
149:9 149:13

field 101:1
170:14

field-adjustable
31:25

fight 34:5

figure
87:18
92:11
92:11
100:7 102:10

figures 86:11

filed 9:7
9:12 27:10
27:15 147:23

fill 116:18
118:17

filled 115:13
116:8
116:9
117:1
165:8 166:1

filling 70:17
115:9 115:15
115:16 116:7
118:19

final 7:19
13:22 28:4
41:25
56:24
57:13
66:16
67:10
70:25
71:15
78:24
80:19 81:8
111:25
112:17 119:1
172:16
188:15
193:15
211:20 216:5
220:4 230:10
231:6
238:5 238:21

Finally 145:3

finding 44:15

finish 83:7
83:14 84:5
89:1 89:10
103:12

finished
89:10
89:20 95:23

fire 6:10
15:23 17:8
21:3 21:6
23:16 26:6
26:15
31:10
31:18 34:4
35:10
35:17
35:20
37:18
38:14
38:23 39:4
41:9 41:14
46:5 48:11
50:1 50:12
50:15
50:16
50:19
50:21
50:23
50:25 51:5
51:12
51:17
51:22 52:1
52:3 52:5
52:7 52:14
52:15 53:4
53:16
53:17
53:18
53:18
53:19
53:20
53:25 54:3
54:12
54:13
54:15
54:20
55:21
55:25 56:1
56:3 56:4
56:8 56:10
57:18
57:25 58:14
59:11
60:22 61:3
62:11
62:13
62:17
62:17
62:25
63:18
63:19 65:9
65:12
65:14
65:16 66:1
66:2 66:3
66:4 66:8
66:21
74:12
74:15
74:23 75:1
81:19 83:6
83:7 83:12
83:13
83:15 84:4
84:6 84:13
87:3 88:2
89:3 90:23
90:24 91:2
91:4 94:11
94:18
94:20
97:12
108:5 112:23
113:8 113:15
113:23 114:4
120:11
120:20
122:24
122:25
122:25 123:5
123:16
123:21
124:19
124:22 125:2

125:13
125:14 126:7
126:9 126:10
126:13
126:15
126:17
126:20
126:21 127:2
127:9 129:13
129:21
129:22
129:24 130:2
130:2
130:3
130:4
130:5
130:7
130:7 131:14
131:25
132:11
132:15
138:20
140:21 141:6
143:15 145:3
145:4
145:8
145:9
147:5
147:7 147:11
147:13
150:22
150:25 151:8
151:13
152:18 154:2
155:16
155:19
156:19
158:14 166:6
174:13 175:1
175:6 175:11
175:22
175:24 176:3
177:5
177:5 178:12
179:14
179:21 180:6
180:7 180:10
181:22 182:4
182:18 183:2
183:6
184:7 184:16
187:14
187:21
189:15
190:16
190:21
191:22
194:11 195:2
196:6 197:21
197:24 198:3
198:20
199:14
200:13
201:21
202:11
202:15 203:4
203:6
205:5
207:2 208:12
208:22
212:16
214:12
216:24
218:16
220:24 221:9
221:12
221:16
222:10
223:23 224:6
224:24 225:2
225:2
225:2
227:2 232:22
233:1
234:3 235:11
235:21 236:6
237:19

firefighter
53:7 53:8
158:11 175:7
176:2 180:12
190:22
205:20
221:15

firefighters
35:9 46:3
179:17
179:20 180:2
180:8
185:1 224:11

firefighting
31:11 35:3
35:5 35:7
35:11 151:15
175:24 176:5

firehose 39:4

fire-resistant
64:20 64:21

fires 62:7
62:18 65:5
65:13 150:21
150:21
151:13
151:17
153:21
155:14 176:8

fireworks
177:2

first 11:19
16:11
16:20
25:11 29:1
29:16
29:24 30:2
39:7 50:18
51:4 58:2
58:5 62:2
67:23 68:1
69:4 72:8
72:12 76:6
76:11
76:12
76:19
81:23
81:25
83:15
83:19 87:8
88:5 88:9
95:12
97:11
97:13
103:4 111:13
113:11
113:14 117:2
120:18 122:5
129:13 136:6
136:9 137:14
137:20 144:8
146:4 154:14
162:1
162:5 164:12
167:12
167:17
167:18
167:21
173:20
173:24 178:5
178:6
180:9 186:13
191:15 192:8
195:24
196:17
197:13
198:17

199:19 201:5
201:23
206:20
206:21 214:5
214:23 218:9
219:2 222:16
223:7 231:16
231:19
232:22
235:13
235:18
235:20 236:3
236:4

firstresponders 158:12

Fisher 122:11

fit 85:9

fitting 118:5
183:9

fittings
32:13
115:6 115:18
115:23

five 9:12
27:16 29:9
42:22
49:19
57:10
58:22 63:5
66:15 67:1
67:6 71:11
81:5
100:23
111:20
112:13
117:19
119:10 135:5
135:14 146:3
159:9 159:17
165:6
173:2
189:5 193:25
204:5 204:20
212:6 216:15
220:15
230:20
238:15

fixing 37:10

flame 62:3
63:7 63:16
74:13
74:17 94:3
94:13 129:20

flames 89:17

flame-spread 59:15

flammability
59:17 64:6
65:6 65:10

flammable
18:12
19:11
19:13
59:10
59:19
59:21
60:16
60:17
60:19
60:23 61:2
61:5 61:7
61:11
61:15
62:22
63:11 66:7
66:10
66:11 140:17
142:9
152:1 175:19
182:24

flash
138:20
140:21

flashback
118:15

flashers 6:3

flat 94:8
138:11

flexibility
64:11 236:9

flimsy 61:10

floor 12:9
14:5 14:15
30:24
42:15 43:7
49:13 57:5
58:22
66:25
68:23 71:3
73:5 80:24
84:19 85:7
86:8 95:21
95:24 99:2
111:25
114:15 119:5
126:19
126:19 133:1
134:18 135:9
153:11 159:1
163:12
172:19
174:18
188:23
189:23
193:18
194:16
194:16
198:19
198:22
198:25
203:20
204:13
205:10
211:23
212:22 216:8
217:3
220:7
221:4 230:13
232:12
235:16 238:8

floors 31:6

Florida 22:15
145:25 201:4
201:4 201:5

flow 33:7
35:8 35:16
37:12
37:19
44:21
44:22
44:25
46:23
47:25 49:6
53:12 56:7
126:11
132:22

flowing 45:4

flows 33:3
35:13
35:22 40:6

flux 183:6

FM 33:9
34:8 40:13

focus
139:17 197:5
223:12

focused 53:1

Foisel 161:12
161:17

161:23
162:14
163:11
163:15
166:11
168:15 169:5
169:22
170:11 171:7
171:17
171:25
172:11
172:18
173:17 174:9
174:17
174:21 177:9
179:8 180:15
182:2 182:13
184:5
185:9 185:12
186:2
186:7 187:18
187:23
187:25
188:10
188:22
189:18
189:20
189:22 190:1
191:5 192:12
193:11
193:17
194:15
194:19
195:10
196:21
197:10
197:18
198:10
198:14 200:5
200:9
202:6 202:25
203:15
203:19
203:25 205:9
205:13 206:7
207:23
208:20
208:24 209:1
209:17 210:8
211:4 211:16
211:22
212:19
212:21
212:25
213:21 215:2
216:1
216:7
217:2
217:6 217:21
219:6 219:25
220:6
221:3 221:23
222:21 224:3
224:8 224:21
225:7 225:11
226:14
227:25 230:3
230:6 230:12
231:12 232:5
232:11
232:15
234:20
236:15 238:1
238:7

folding 59:9

Foley 74:21
77:16

follow-up 8:3
12:3 13:25
14:1 14:4
150:25

fond 39:6

foot 100:19
100:20
100:21
100:22

forcing
115:17 116:8

foremost
137:14

forget 12:19

forklift
115:16 116:7
116:9
116:9 116:14
116:15
116:18

forklifts
115:10

form 37:7
101:22
125:14

former 91:4

forms 145:12

Forty-three
144:14

forward 41:12
78:3
105:14 144:7
144:10
223:25

forwarded
8:23 9:4

fossil
146:7 147:19

Foundation
150:19
179:17
179:20
224:11

founded
156:25 157:5

FR6666 178:18
192:3 196:12

FR6738
207:8 214:18
218:22

Francis
156:18
156:19
185:10
185:10
185:13

Frank 21:8
21:13

free 138:6
175:10

Freedenberg
20:9

frequently
115:20

front 227:9

FTC 51:20
51:23

fuel 21:14
69:6 70:8
70:17 135:21
136:4 136:11
136:17
136:21 138:9
140:4 146:14
147:6

fuel-dispensing
138:8

fueled 151:9

fueling
140:12 141:9

146:7 147:19
154:25
155:13
156:14 202:1

fuels
145:18 146:8
147:14

full 54:17
99:1 99:8
101:3
115:6 162:16
175:11

fully 32:7
55:8 73:23
77:14
96:22 157:17
171:15
205:25 206:3

function 39:1

functionality
37:18

fundamentally
184:13

Fundamentals
19:13 22:6

funny 95:14

furnished
36:9 37:2

furnishings
19:19
64:12 175:18

furniture
59:7 59:17
59:25
60:13 61:9
61:13
61:17 62:4
62:14 63:7
63:16 64:7
64:8 64:16
65:6 65:6
65:10
66:22
81:14
81:22
82:12 187:5

Furthermore
92:11 101:6

future 15:2
52:8
139:17
147:21

G

Gallagher
15:17

games 229:4

gap 86:16
100:23

Garages
135:22 136:5
136:12
136:18
136:22

garbage
183:12
183:13
199:12

garnering
164:2

Garris 197:20
197:20

gas 16:24
20:16
21:14
21:20
21:22
21:23 23:8
67:17
67:21
67:22 68:1
68:3 68:6
68:9 68:13
114:12
114:22
114:23 115:8
115:25
116:25 117:5
138:16
138:22
139:11 147:6
150:21 156:4
156:12

gases 20:15
20:16
20:21
21:17
21:23 22:4
70:4 140:17

gasket 115:5

gaskets
115:19

gasoline
147:21
148:14
149:14
149:18

gauge 32:17
100:18

GBH 58:19
59:4 65:20
73:1 73:11
77:10 80:3
87:25
103:5 129:11
153:16
182:14
197:11
209:19 232:9
232:18
236:20

geek 226:21

general
127:21

generally
34:1 36:15

generated
94:4

gentleman
109:23
170:16

gentlemen 5:6
15:8 29:21
57:23
67:20 72:3
81:18
83:11
113:6 120:16
136:2 153:12
173:18
231:13

Gentry 20:18

George 111:5

gets 122:19
150:1

getting 201:2
201:2
203:9 226:25
227:1

Gettleman
93:21
93:22 108:18
108:19

given 16:13
34:9 35:19
65:22 100:13

100:21 185:6
gives 197:25 202:2 223:21
glad 23:21 128:24
globally 157:9 157:13
Glossary 129:15
goal 126:10 147:18
gold 143:21
gone 16:6 40:25 154:22
gotten 152:23 200:2
govern 7:1 147:8
governing 6:25 12:25 24:21 76:2 112:5 120:24 167:8
government 15:22 74:12
government-funded 151:11
GPM 35:14
graciously 15:6
granted 10:7
granularity 165:12
grave 46:2
great 37:16 64:11 208:22 209:4 217:12 233:8
greater 44:23 115:20 156:11 156:13
greatest 118:3 176:7
green 12:22 150:22
group 34:22 87:4 87:7 97:21 97:21 98:2 119:14 127:16 139:7 144:1 144:5 161:7 179:2 182:16 191:16 195:25 207:16 214:6 218:10 222:12
grouping 191:2
group's 38:3
Growth 83:7 83:15 84:6
Gruner 120:13 120:15 124:6 127:16
guarantee 232:25
guidance 75:11 77:19 78:4 91:12 93:1 93:9 96:6 128:11 133:22 165:6
guide 7:8
guidelines 36:15 42:10
guides 158:13
Gustafson 170:12 170:13
Guyer 18:8 18:10

H

Hadrian 99:25 99:25 104:15 109:16
hails 21:11
hairs 229:4
half 14:23 152:12
hall 49:22 49:25 50:1 50:7 50:9 52:18 199:12
hallway 184:23 225:19 226:11
hallways 185:3 209:13 224:16
hammer 43:21 47:13
hampers 175:24
Hampshire 16:24 20:25
Hampton 23:7
hand 31:15 35:12 225:23
handgrip 115:23
handle 70:12
Handling 22:4
handshake 149:24
handy 229:11
happen 123:16 123:18 153:22 184:21 200:4 210:4
happened 74:20 103:22 154:2
happens 149:24 210:2
happy 105:7
Hara 64:2 64:2
hard 150:6 227:16
hard-shell 165:25
harm 75:16
haven't 106:19 172:8 200:2 225:5
having 74:5 79:20

84:22
108:4 118:19
193:4 200:12
202:19 228:8
228:12
228:13
236:10

Hawthorne
143:12
143:13
152:17
152:17
154:21

hazard
19:18
48:13
138:6 140:22
141:23 142:4
142:5
142:6
142:7 142:14
142:20
149:17
149:19 175:7
181:25
210:16
210:22
210:23
221:14 225:4

hazardous
115:3 142:11
142:12
151:24
151:25 152:3
175:14
190:13
194:25
205:21
205:22

hazards 16:25
23:8 115:6
140:16
150:23 166:6
179:7 207:21

HDE 84:15

HDPE 85:15
89:12
89:16
90:10 91:7
95:9 95:20
97:2 98:9
100:1
103:8
104:8 107:16
108:11

head 69:22
199:1

heads 105:20

Health 43:3
44:10
47:23 125:10
128:7 128:8

healthcare
17:20
17:21
22:16 23:2
23:2 44:9
55:3 55:4
55:5
125:11
161:19
161:25
161:25
166:12
168:21
168:22 191:1

hear 28:3
98:21 103:10
104:11
114:16
130:14
155:14

heard 97:17
98:5 103:7
105:16
105:16
106:11
110:11
129:13
154:15
154:23 155:8
156:1
156:9 182:18
182:19
182:25 186:6
186:9
187:1 192:22
197:3 202:13
223:4

hearing
20:5 106:8
106:16 130:1
153:19
202:11

hearings
103:9 200:15
200:15

heat 94:3
94:13 182:22
183:6

heavily
127:24

heavily-regulated
44:10

height
53:15 99:1
99:8 101:3
101:4 142:14

heights
22:2 51:16

held 73:22
75:24
76:24 77:4
77:12
77:12
80:22 128:22
144:9
167:5 168:13
169:9

Hello 163:8
171:8

help 74:3
77:18 128:11
171:15 225:1

helpful 75:17

here's 208:9

Heritage 17:8

he's 16:25
17:11
17:12 18:1
21:8 22:16
22:23 78:13

hey 201:22

Hi 171:22

high 46:23
69:22
85:10 198:19
198:20
199:21

high-density 87:5
89:11 90:21

higher
53:11 56:9
140:11 225:5

highlight
122:13

highly
60:19
60:23 61:5
158:8 165:25
175:18
182:24

highly-regulated
146:11

high-pressure
36:9

high-profile
33:23

high-rise
35:11 47:7

hindered
31:11

hire 234:14
237:9

Hirschler
58:18
58:19 59:2
59:3 59:4
61:21
65:20
65:20
66:13
72:25 73:1
73:1 73:9
73:10
73:11
75:18
76:11
76:16
77:10
77:10 78:6
78:12
78:20
79:25 80:2
80:3 87:25
87:25
90:14
90:25
103:1
103:3
103:4 104:10
104:17
129:11
129:11
153:16
153:16
182:14
182:14
197:11
197:11
209:19
209:19 232:9
232:9 232:17
232:18
235:14
236:20
236:20

historically
37:15

history
66:1 175:22

hit 111:18

hold 48:17
49:5 76:8
167:14

hole 44:18
45:4 46:21
47:24 49:9
102:8 130:4

holes 45:19

Holland 137:2
137:3 137:11
137:12

homes 170:22

Honestly
79:11

Honeywell
22:1

honor 24:9
119:17

honored 25:15

hoods
128:18 129:4

hoping 121:19

Hopkins
41:8 41:9
48:10
48:10
54:11 54:11

horizontally
148:14

horns 6:2

hose 29:18
29:23 30:4
30:9 30:14
43:14 44:3
44:5 44:11
44:15
44:16
44:16 45:2
45:18
45:25
46:14
46:17
46:19
46:24 47:8
47:8 53:16
53:21

Hospital 55:2

hospitals
44:9

host 146:1

hosted 146:3

hot 138:12

hour 152:11

hours 176:7
226:2
226:4
226:4 226:5

house 5:20
25:25

human 169:17

hundreds
138:15

hybrid 152:2

hydrogen
151:7

Hyper 163:9
163:18

hyperbaric
163:22
164:12
164:18 166:9
167:19
167:22
167:25 168:1
168:5
168:6 170:14

hypothermic
116:5 118:10

I

IBC 88:24
97:19

ICC 188:3
188:9 200:15
201:25

ice 148:23

152:2
I'd 66:18
93:24
94:20
105:7
112:3
123:7 143:19
145:11 148:9
160:7
160:8 161:11
202:4
211:1
211:8 213:23
230:4 235:13
idea 184:14
identical
197:13
identifiable
115:21
163:12 167:3
171:18
172:13
172:20
194:16
195:20
204:14 217:3
218:5
220:1 220:8
identificatio n 142:3
identified
10:10
31:13
48:13
76:11
82:21
98:16 140:14
162:25
identify
12:16 31:18
identifying
7:25
idle 140:25
idling 138:11
IFC 74:8
74:25
88:24 89:3
229:24
IFMA 184:7
184:10
ignite 152:1
igniting
140:24
ignition 61:6
81:13
81:21
82:11 116:17
118:14 141:6
ignores 166:5
I'll 110:10
110:20 186:4
195:12
Illinois
18:11 20:25
I'm 20:4
23:21
25:14
25:14
30:19
30:19
38:13 39:6
39:23 43:3
47:5 47:23
60:20 64:1
64:3 69:4
73:16 79:4
79:12
79:20
84:14
84:15
84:25 88:2
90:23
90:25
92:24
98:21
99:21
103:8 104:12
104:20
105:12
108:19 110:8
110:24
121:19
121:23
122:20 126:2
126:4
126:4
128:1
128:2
128:2 128:24
134:9 134:14
143:13
143:14
143:16
152:19
154:10
154:13
160:16
163:17 169:7
169:8 169:10
169:10
170:13
170:13
170:18 171:9
172:2
172:2 177:23
177:24
179:15 184:8
185:13 186:8
186:8 191:10
191:11
195:15
195:16
198:12
198:13
198:13
198:15
198:18 199:5
200:8 200:12
202:10 203:4
203:10
206:13
206:14 209:2
210:11
213:25
215:10 224:9
224:18
224:23 225:9
225:12
225:16 226:5
226:6 226:12
226:20
226:21 234:7
IMAD 14:16
immediately
6:8 26:13
75:1
111:16 152:3
impact
141:9
155:2 221:14
impacting
205:19
impacts 44:2
impair 35:5
37:17
impaired
51:25
impediments

175:10
implement
93:10 128:12
implemented
108:3 128:10
implication
233:12
implies
101:14
implore 129:7
importance
5:8 7:11
important
9:20 27:1
32:8 38:16
61:2 74:25
79:18 90:8
109:18
141:19
164:14
180:11
233:24
importantly
139:11
impossible
182:20
improper
108:14
improperly-installed
155:21
improve
52:8 77:18
180:12
improvements
15:2 74:23
improving
15:23
inability
150:10
inaccurate
165:8 169:13
inappropriate
123:8
in-building
53:20
Inc 84:13
84:25 145:19
inch 43:17
46:22 48:4
49:5 86:2
86:5
inches 85:9
85:22 86:2
86:5 86:18
86:18
92:19
92:20
94:18
95:23
96:19 98:5
98:11
98:12 99:1
99:5
102:21
109:25 110:2
148:15
148:17
148:18
incidences
140:24
incident
94:11 138:19
157:15
incidental
185:20
incidents
47:7 47:13
66:6 146:5
158:3 170:22
183:22
include
28:5 75:1
86:14 96:6
96:11 139:14
141:25
included
79:14
79:19
86:11 87:9
92:11
93:15 122:24
124:21
132:12
132:14
132:20
139:13
190:23
202:23
includes
132:7 149:6
including 7:2
10:3 27:24
74:11 91:2
91:7
112:24 113:9
113:16
113:24 114:5
115:10 127:3
127:11
158:13
inclusive
125:18 134:6
134:9
incomplete
85:11
inconsistencies 101:6
inconsistent
93:11 210:5
Incorporated
18:21
19:10 22:2
90:19 107:13
incorrect
108:14
increase
141:5 183:24
201:17
increased
62:13 221:14
increases
53:15 180:6
incumbent
78:14
indeed 79:18
independent
110:14
110:16
Indianola
21:12
indicate
8:7 12:22
12:23
91:21
151:4 152:7
indicated
44:4 65:10
120:5 124:18
127:24
167:17 178:7
178:24
192:20
206:22

207:14
indicates 168:3
indication 46:24
indicator 46:10 49:10
indifferent 128:20
indiscernible 61:14 96:14
individual 37:3 82:17 162:22
individuals 16:20 23:25
Industrial 112:24 113:7 113:8 113:16 113:23 114:4 116:22
industries 20:19 146:11
industry 15:21 44:10 72:5 74:3 75:6 75:11 75:12 75:21 78:5 103:8 115:17 146:21 147:4 151:11 164:12 165:23 166:9 175:1 181:18 181:20 184:3 187:9
industry's 183:10
ineffective 52:1 56:2 74:13 74:17
infancy 42:7
infinite 37:19
inflated 166:3
inflating 138:11
inflators 148:23
information 12:20 14:22 30:8 58:11 59:7 68:9 72:18 73:18 73:18 74:2 77:18 79:12 79:13 79:21 80:8 82:6 83:25 85:12 86:19 90:1 90:3 100:8 113:22 121:3 136:16 144:11 162:11 165:9 171:4 172:8 174:5 182:10 231:23 231:25
infrastructure 150:11
inherent 36:6
inhibit 176:4
Initial 118:9
initially 70:12
initiate 140:13
initiated 6:6 26:11
initiating 132:22 132:23
injuries 172:5
injury 31:17 43:22 43:25 46:8 65:7 140:20 147:5 170:25 180:14
inlet 31:23 33:6
input 59:13 62:2 73:24 75:2 76:5 76:5 76:6 87:4 87:8 88:8 88:10 88:11 88:15 88:16 88:19 97:22 97:24 103:22 122:4 124:10 127:18 127:21 127:23 131:6 143:24 167:11 167:11 167:12 168:12 235:17 235:22 235:23 236:2
inputs 127:21 235:1
insane 199:9
inserted 149:22
inset 100:10
inside 85:24 100:20
inspect 45:2
inspected 127:2 127:10 132:17 133:4 133:21
inspection 201:12
inspections 201:18
install 150:11
installation 29:17 29:22 30:4 30:9 30:13 34:20 36:8 37:22 42:9 52:12 56:15 91:16 92:4 94:17 96:10

96:15
98:15 108:24
109:1
109:8 109:24
127:3
127:4 127:10
132:7 140:17
140:22 147:8
223:22

installations
34:10 96:5
148:11

installed
34:17
36:22
65:14
91:24
95:25 96:3
96:5 105:2
106:22 138:3
142:17
149:13
149:15
149:18
155:24
156:12
221:12
223:20

installing
38:20 40:8
96:8

instance
185:16

instances
183:25 184:1
184:2 228:10
229:14

instead 95:22
152:24
200:22

Institute
18:11
69:18 88:1
91:5 103:5
143:14
152:18

instructions
86:7 91:17
92:4 92:8
100:7 101:14
102:12 127:6

insufficient
178:25
207:14

insurance
21:9 21:10
37:25 151:11

intact 44:16

integral 9:20
26:25

integrate
129:21 130:7

integrated
120:11
120:17
120:20
123:20
124:22
124:25 125:2
125:14
126:23
127:12
128:16
128:23 129:7
130:8 130:20
131:14 132:2
132:5 132:13
132:16
132:18
132:21 133:9
133:10
133:13 134:1

integrity
34:3 78:15
123:22
131:24
132:17 133:1
133:25

intended
106:14

intending
142:24

intent 8:15
24:18 45:9
48:3
100:18
202:17

intention 8:8
164:2

intentions
137:24
137:25

interaction
140:12 144:4

interest 25:9
121:16
146:16
147:10 164:3
235:14
239:17

interested
15:22
139:9 146:14

interesting
210:1 234:9

interior
35:12
64:25 83:7
83:14 84:5
88:25 103:12

internal
183:5

international
58:19 59:4
65:21 73:2
73:11
77:11 80:3
88:1 103:5
129:12
153:17
174:13
178:12
179:14
179:21 182:4
182:15
182:18
187:14
187:21
189:15
191:22
194:11 196:6
197:12 198:3
203:4
205:5
207:2 208:22
209:20
212:16
214:12
216:24
218:16
220:24 224:6
232:10
232:18
234:12
236:10
236:21 237:8

interpret
110:12
110:15
110:15

interpretation 108:8 125:19 126:1
interpretations 93:11
interpreted 128:21
interrupt 37:5
introduce 15:15 25:11 76:20 76:23 76:24 161:11
introduced 25:14 77:23 167:23
introduces 76:8 167:14
introduction 120:4 175:3 209:13
invalid 105:11 151:22
invalidates 98:20
invent 234:14 237:9
investigated 47:7 65:8
investigation 39:14
invite 15:3
involved 56:17 64:17 64:19 65:5 133:10 143:22 170:23
involvement 164:3
IOS 10:24
Iowa 21:12
irrefutable 26:18 29:10
irrelevant 233:10
Island 74:20
isn't 86:18 98:11 109:10 151:25
isolate 37:3 41:17
isolated 32:15
isolation 31:12 31:19
issuance 9:1 10:1 10:3 27:7 30:12 58:13 68:12 72:20 82:9 84:3 114:3 121:5 136:20 162:13 174:7 232:3
issuant 27:23
issue 10:16 53:1 61:9 66:3 80:4 97:12 110:6 131:4 152:20 152:22 166:20 180:18 186:15 186:22 186:24 193:5 206:9 215:13 225:13 225:22 225:23 226:21 227:18
issued 146:24
issues 73:15 98:5 139:22 144:22 144:23 147:1 170:8 171:13 176:2 177:16 223:12 235:3
issuing 28:4
item 44:5 76:12 120:10 161:18 167:17 192:22 197:3 215:12
items 130:14 191:1 197:9 215:11
it'll 152:11
IVC 85:15 89:3
I've 20:6 64:14 65:8 91:6 102:8 103:8 110:1 129:13 146:23 146:23 153:19 154:15 170:14 197:8 199:4 202:13 237:4

J

Jack 25:12 25:14 67:19 120:4 120:5
James 22:21 23:6
Janacek 20:23
Jane 74:21 77:16
Janna 57:20
January 75:3
Jason 17:17 17:17 17:19 18:5
Jeffrey 161:11
jeopardized 180:3
Jerry 131:19
Jersey 145:24
Jim 15:11 24:7 168:19 169:6 171:22
job 65:23
Johnson 55:17 125:23

131:19

Johnston
119:21 120:3
120:5 120:15
121:6 121:12
124:3
124:6
125:4 125:21
128:4
129:9 130:10
131:17
134:12
134:17
134:21
134:23 136:1
136:23 137:6
137:9 139:24
143:7 145:15
148:3 150:14
152:15 153:2
153:14 154:7
156:16
158:19
158:25 159:3
160:10
160:13
160:18
161:16

join 16:7
17:7 17:17
18:9 18:19
19:7

joined 157:19

Josh 128:6
177:20
177:24
206:14 214:1
217:25 222:2

Joshua 43:3
43:11
47:22 125:10
191:11
195:16

July 9:9
27:11 235:20

jump 199:19

jumping 199:6

jumpstarting
138:10

JUNE 5:3

junk 102:17

jurisdiction
186:24 193:4
200:19
202:19 228:9
228:12
228:13
236:10

jurisdictions
228:15

justification
59:23
62:10
63:10
66:21
86:17
91:11 92:1
92:20 93:7
176:21
178:25
207:15

justification s 182:10

justified
93:13 149:19

justify 152:8
177:6

K

Keith 154:9

Kellen 23:12

Kelly
210:10
210:10
224:22
224:22

Kelly's 223:4

Ken 174:12
179:18 182:3
189:14 194:9
205:4 208:21
212:15
216:24
220:24

Kenny 184:7

Kevin 21:19
21:21
49:25 150:16
160:6 210:10
211:7 224:22

key 11:18
28:25 141:13
166:5 193:1

kilowatt
182:22

kilowatts
183:4 183:5

Kimberly
120:13 121:6
124:4 135:23

kinds 145:9
184:24

Kingdom 17:9

Kip 179:13
187:20 224:5

kitchen
128:18 129:4

knowledge
195:8
213:7 213:15
217:13

known 41:1
59:14
60:10 179:24

Koffel 97:6
97:9 97:9
97:9 103:4
106:2
106:6
106:6
106:6
107:8 107:15
121:10
121:10
121:10
121:14
121:14
121:14 124:3
124:7 130:12
130:12
130:12
131:23 132:9
134:3 161:21
161:23
166:11
166:14
168:24
172:15
172:17
180:17
180:17
180:17
183:17
185:17 186:3
186:3 186:3

186:8 187:22
192:17
192:17
192:17
196:25
196:25
196:25
200:20 202:7
202:7
202:7
208:3
208:3
208:3
215:7
215:7
215:7 219:11
219:11
219:11 223:1
223:1
223:1 226:15
226:15
226:15

Koffel's
127:14 128:3

Kuhl 17:6
17:8

Kyle 30:18
31:2 39:21
39:23

L

lab 61:9
61:12 65:7
106:23
110:14
110:17

labeled 33:16

laboratories
57:19
57:24 58:1
58:14 59:6
61:23
62:16
62:21
63:12 64:9
65:1

laboratory
42:11 62:4
62:8 62:11
62:13 64:3
64:22 65:5
65:9 66:22

labs 59:9
59:18
59:20
60:24
63:19 64:7
64:11
64:14
65:13 90:4
91:12
92:10 93:1
93:9 108:4
108:7

lack 41:11
63:15 165:6

lacks 85:12
90:2 164:20

ladies 5:5
15:8 29:20
57:23
67:20 72:3
81:18
83:11
113:6 120:16
136:2 153:12
173:18
231:13

Lake 18:11

Lambert
177:20
177:23
177:24
188:20 191:9
191:10
191:11
195:14
195:15
195:16
206:12
206:13
206:14
213:24
213:25 214:1
217:24
217:25 218:1
222:1
222:2 222:3

LaMotte
179:13
179:13
187:20
187:20
187:24 188:1
224:5
224:5 224:9

language
38:19 43:5
43:13 51:3
51:11 75:5
75:8 75:15
76:22
78:13 87:9
88:17
96:11
117:4 122:14
122:18
122:22
127:17
132:11
133:14 134:3
137:17
148:10 164:6
164:19
169:15
176:24 177:3
178:8 178:13
181:6
182:9
190:9 191:18
191:23 192:8
192:10 196:2
196:7 196:17
196:19 198:2
202:1 206:23
207:3
209:8 209:21
214:8 214:13
214:23
214:25
218:12
218:17 219:2
219:4 222:16
224:1 229:24
229:24
233:21
233:22

large 47:7
47:12
99:13 155:2

largest
154:11

Las 5:6

lashings 96:8

last 103:16
170:23
178:14 182:7
190:19
191:24 196:8
200:12 207:4
214:14

218:18
later 9:12
27:15
latest 165:14
Laurence
135:24 136:1
139:24 140:1
143:7
lawn 115:11
laying
56:14 96:6
layout 98:7
99:15
lead 41:18
74:18
leads
115:20 165:7
leak 45:24
leakage 18:14
115:21
leaking 115:5
leaks 45:3
45:8
learn 40:25
least 43:16
59:8 65:24
170:22
leave 6:14
26:19
leaves 74:19
led 34:24
legislated
201:7
legislatively
201:6
lends 110:13
length
149:1
149:6 149:9
lengthy 14:11
less 63:8
63:17 89:6
151:8 151:12
152:1
183:3 232:21
232:22
lessen 31:16
let's 17:5
28:12
29:15
30:16 38:8
42:25 47:1
49:21
58:16
68:15
70:19
72:23 77:7
80:9 82:14
84:8 87:21
104:25
105:12
105:14 110:5
110:7 110:24
114:8 114:19
121:7 136:24
160:3
163:6
174:9 184:19
185:15
189:11 194:6
205:1 212:12
216:21
220:21
227:20 232:6
238:21
letter 30:5
58:7 68:4
72:14 82:3
83:21 113:19
120:22
136:13 162:7
174:1 179:16
224:10
231:21
level 54:14
85:10 208:12
222:18 225:5
levels 39:3
39:5 65:1
Leyton
29:18
29:20
30:15
34:11
34:14 38:7
41:24 42:1
45:14
45:16
48:25 49:2
52:19
52:21
56:23 56:25
Liberty 19:11
lid 176:12
181:15 183:9
lids 178:10
191:20 196:4
206:25
214:10
218:14
life 18:23
21:1 23:15
23:19
64:25 73:21
80:10
88:23 120:11
120:21
123:13
124:20
124:22
131:15 166:6
173:14
173:19
173:20 175:1
175:6 177:17
179:23
180:13
184:16
186:23
186:25
190:16
190:21 193:3
195:2 221:16
223:15
lift 116:8
lifting 115:6
116:11
likely 59:8
93:10
99:10 138:14
151:8 151:13
152:1
likewise
150:2 185:23
limit 13:14
36:3 62:18
62:25
63:19 64:6
125:16
176:13
181:14
Limitation
46:21
limitations

36:6 66:22
limited
17:9 28:22
60:2 63:6
limits
35:16 175:25
230:1
line 16:1
100:6 199:19
lines 35:12
53:16
53:21 95:24
link 37:24
86:13 229:11
Lipster
134:14
134:15
Liquefied
67:21 68:6
68:9 68:13
70:3
liquid
62:22 115:22
115:25 116:3
116:4
118:7 118:10
118:11
118:12 141:9
147:14
155:13
156:14
liquid-fueled
156:3 156:7
liquids 18:13
19:12
19:13 140:17
152:2
Liquified
20:15
20:21
21:17
21:22
67:16
67:22
67:25 68:3
115:8
list 134:6
134:10
162:17
175:14
listed 33:2
37:9 43:14
48:18 151:25
158:8
listening
129:7
listing 37:17
42:6
listings
32:23 32:23
literally
38:22 102:18
105:20 203:7
liters 62:21
lithium
140:24
little 20:6
121:25
live 10:22
146:4 198:19
201:4
lives
180:13
226:10
LK 99:22
99:24
load 176:3
226:10
loading 180:6
local
190:15 195:1
227:2
locality
202:4
locate 143:4
located
148:23 150:4
157:10
170:21
location
6:8 26:13
36:17 101:16
143:5 148:16
148:19 150:8
158:16
197:25 213:6
locations
72:1 72:7
146:2 146:20
147:17
150:12
151:25
157:10
locked 51:21
locking 32:20
log 11:17
28:24 137:16
logic 177:2
long 47:5
47:5 47:18
60:21
84:10
84:12
84:13 84:23
84:24
84:24 86:2
86:5 86:23
88:22
91:25 101:25
102:2
102:3
149:3 152:13
157:4 161:14
161:15
165:19 187:3
227:14
longer 125:18
152:19
longstanding
46:16
long-term
185:20
185:22
loosened 46:1
lose 181:10
181:12
losing 31:6
33:21
loss 8:23 9:3
15:23 33:3
34:4 140:20
lost 8:19
lot 20:6
32:22
56:12
59:18 99:3
103:7 103:15
104:16 106:8
110:22
121:25 122:7
127:21 134:2
185:5 187:2

206:2
213:9 215:23

lots 228:10

loud 26:7

Louis 18:21

love 60:20

low 65:1
163:21
163:25
164:11
164:17
164:24 165:2
166:2 185:2

lower 53:13
70:15 100:11

LP 20:16
21:23
68:21 116:25
117:5
117:9 117:15
118:2

M

machines
148:23

main 31:4
31:20 32:3
32:5 32:7
32:25 33:12

mains 35:14

maintain
181:3
181:4 181:16
185:21 187:4
227:15

maintained
175:10 192:7
196:16
209:11
214:22 219:1

maintenance
37:22
113:1 113:10
113:18
113:25 114:6
175:8

majority 9:24
13:6 27:5
40:16 154:25

maker 11:22
11:24 12:6
14:1 42:5
49:5 82:20
160:20
162:24 221:8
221:13 223:6
238:24

malfunctions
33:21

managed 33:14

management
19:21 23:3
37:25 225:9

manages 44:8

Mandalay 5:19
6:7 6:16
25:24
25:24
26:12 26:21

mandated
211:14

mandating
75:11

mandatory
117:3

manner
91:24 146:17
181:21

manual
31:12 37:8

manufacturer
84:14
90:21 95:5
95:9 100:1
104:21 172:4

manufacturers
89:5 96:5
98:14
101:7 114:24
147:2 165:16

manufacturer's 86:7 91:17
92:4 92:7
100:6
127:5 133:23
185:25

Manufacturers
137:3 137:12

Manufacturer's 96:10

manufacturing
96:18
99:25 109:17

maps 6:15

Marcelo 58:18
59:3 65:20
73:1 73:10
77:10 80:2
87:25
103:4 106:22
129:11
153:16
182:14
197:11
209:19 232:9
232:17
236:20

Marcelo's
187:12

March 87:8

Marine
20:14
136:3 136:9

Mark 99:21

marked 5:16
25:20

marketplace
171:11

Marshall
187:21
200:13 224:6

Marshalls
174:14
179:14
179:21 182:4
184:7 189:16
194:11
197:21
202:12 203:4
205:5 208:22
212:16
216:25
220:25

marshals
203:7 225:2

Maryland
21:21 145:24

Massachusetts
17:20

match 32:2

material
48:20
51:24 52:6

59:21 60:8
61:12
73:23
73:23 74:1
75:9 75:25
76:3 76:8
76:18
76:24
77:13
77:14
77:21
77:23
85:18
95:10
107:2 108:21
108:22
115:25 122:3
124:24
130:15 167:6
167:9 167:14
169:1
169:2
169:9 169:19
183:3 183:6

materials
59:15
59:15
59:16
59:19 60:2
60:3 60:3
60:3 60:7
60:10
60:14 61:2
61:4 61:7
61:16 66:7
66:10
66:11 89:7
89:10 90:5
90:10 103:11
104:6
176:1
176:2 182:21
182:23 183:8
184:25 188:4
233:7

matter
11:10
96:24 97:3
110:3 121:16
138:2 180:24
209:5

matters 10:15
139:15

Matthew 95:4

maximum
35:7 51:19
69:5 151:21

may 5:18 6:21
10:11 13:1
13:9 13:13
15:1 20:20
25:21
28:21 35:6
35:9 35:11
35:16
35:20
35:23
35:23
43:21 44:6
46:24 52:8
53:3 61:6
75:12 76:7
80:2 82:23
87:3 116:5
152:19
156:21 163:2
165:5 167:13
176:4 201:17
239:3

maybe
200:22
201:23

MBH 5:20

McGraw
200:6
200:6 200:10
228:1
228:1 230:4

McHone 198:12
198:12
198:15 225:8
225:8 225:12

mean 66:6
103:16
149:12
154:24
155:15
203:10
226:23

meaning 74:1

means 23:15
59:8 74:10
90:4 175:9
175:21
175:23 176:3
180:4 184:14
188:4
188:5
209:7 229:16
229:25 233:5

meant
100:17
100:17
108:25

mechanical
22:19 126:8

mechanically
92:3

media 151:11

meet 5:7 28:2
229:2

meeting 5:2
5:6 6:22
6:23 7:18
8:1 8:5 8:16
8:25 9:7
9:11 9:18
10:5 12:1
13:2 13:11
14:25 15:4
15:9 15:13
24:3 24:6
26:22
26:24 27:9
27:12
27:14
27:20
27:24 28:1
55:4 60:4
62:2 63:4
69:4 69:11
69:16
76:20 87:8
88:5 88:18
97:13
97:14
122:6
153:9 168:23
235:20 236:3
236:5 236:13
239:16
239:18
239:20

meetings
7:3 10:6
10:21 144:9

meeting's
9:16

meets 228:25

MeLinda
203:16 211:5

melt 89:17

member
10:23
11:13
16:13
28:15
28:20 88:2
90:24 157:19
161:12
169:25 170:6
177:20
177:24
191:11
195:16
206:14 214:1
218:1 222:3

members 6:6
10:7 10:10
10:13
11:17 13:4
13:6 20:8
26:11
28:24
36:11
38:15 127:22
139:7 139:18
144:14
144:16 153:9
184:12 203:5

membership
8:21 9:22
10:15
10:16
12:18
13:10
13:20
14:18 27:3
42:1 49:3
55:4 56:18
57:1 66:18
75:9 77:23
78:2 78:3
78:14
80:13
85:15 111:16
131:1 137:15
139:2 152:12
160:9 169:20
170:9
182:7 186:16

membership's
13:23

mention
169:12
176:17 190:7

mentioned
28:9 134:3
147:4 170:16
188:2 194:24
195:5 217:10
217:10
236:25
236:25

Mercantile
19:1

merely 98:6

merits
77:25
78:13 80:7

met 153:8
168:22

metal 22:5
63:6

metallic
60:11

Metals 22:5

meter
182:22 183:4
183:5

method
73:19 74:9
82:10 88:6
88:22
89:25 90:6
90:7 90:13
93:4
102:23
103:18
103:20 104:3
104:8 104:18
104:25 105:9
105:13
105:15
105:19
105:22
106:13
106:17
106:20
106:24
107:24 108:2
109:19
109:20
109:21 110:7
110:9 110:14
150:7
233:3 233:8

methodology
10:19
93:25 108:13

methods 81:12
81:20 83:5
83:13 84:4
85:13 87:5
98:18
99:10 102:15
232:20
232:23
233:17
235:25
236:11 237:1
237:25

Michael
17:6 17:7
17:8 17:14
22:13
22:15
23:12 119:21
120:15
161:17

Michele 15:15

microphone
11:25
30:17
38:11
39:11 41:5
43:1 47:2
47:19 48:7
49:23
54:10
54:23
55:14
58:17
63:23
65:17
68:17
72:24 77:8
78:7 79:7
84:10
87:22
90:15
93:18
94:25 97:6
99:17 101:24
102:25
104:12 106:2
107:9 108:15
109:12 111:1
114:9 117:22
121:8 121:13
125:8 125:21
128:4

129:9 130:10 131:17 134:12 137:1 143:11 145:15 148:3 150:14 152:15 153:2 153:3 153:15 154:7 154:8 156:16 158:19 160:4 162:23 163:7 168:18 169:5 169:22 170:11 171:7 171:20 174:11 177:19 179:12 180:15 182:2 182:13 184:5 185:9 186:2 187:18 188:14 189:12 192:16 194:7 196:24 197:10 197:18 198:10 198:11 200:5 202:6 202:25 203:15 203:21 205:2 208:2 208:20 209:17 210:9 211:4 212:13 215:5 216:22 219:9 220:22 222:24 224:3 224:21 225:7 226:14 227:25 232:7 235:5 236:18

microphones 12:22 12:24 82:18 111:11 135:18

migrate 118:13

Mike 120:5 148:7

Milash 166:23

mild 163:22 167:22 167:25

milder 60:1

million 146:3 157:1 157:14

millions 47:15

mind 5:17 25:21 85:5 103:4

minimally 13:5

minimize 46:7 142:23

minimum 34:7 52:9 53:9 117:11 179:6 207:20

Minnesota 22:22

minus 116:4

minute 13:16 103:16 119:23

minutes 11:11 13:13 39:7 152:24

mirror 211:6

mislabeled 86:15

misleading 165:9

missed 16:1

missing 92:12 199:3

mission 16:7 156:22

Missouri 18:21

misuse 141:3 156:2 156:3

mitigate 179:7 207:21

mobile 6:21 202:1

modeling 177:5

moderate 95:19

modern 35:11 65:13 150:23 151:1 151:4 151:6

modified 40:24

modify 109:6 190:4

molecule 146:19

moment 5:9 138:14

Monday 74:22 153:8

monitor 45:8

monitored 44:17

monitors 35:13

monoplace 165:19

month 40:22 153:25

monthly 40:18

months 45:3 47:17

morning 15:8 25:16 30:18 41:8 67:17 68:19 81:15 90:18 95:3 106:9 113:2 118:1 154:9

Mortimer 21:8

mostly 151:5

motion 8:8 8:15 11:23 11:25 12:3 12:6 12:12 12:16 12:23 12:24 13:1 13:21 13:24 14:1

14:2 14:3
14:4 14:7
14:10
14:14
14:20
24:19
30:17
30:20
30:23 38:9
38:11
39:10
39:25 40:2
41:7 41:10
41:21
41:23 42:5
42:13
42:15
42:15
42:19
42:20
42:24 43:1
43:6 43:11
47:2 47:4
47:6 48:12
48:23 49:5
49:13
49:13
49:17
49:18
49:20
49:22 50:3
52:16 54:8
54:10
54:12
54:17
54:22
54:25 55:3
55:13
55:18
56:18
56:21 57:5
57:5 57:8
57:9 57:11
57:12
57:12
58:21 59:5
61:20
63:23
63:25 64:4
65:19
65:22
66:14
66:25
66:25 67:3
67:4 67:8
67:8 67:9
68:21
68:22
69:13 70:6
70:20
70:22 71:3
71:3 71:6
71:7 71:13
71:13
71:13
71:24 72:4
72:5 72:24
73:3 73:4
73:12
73:12 74:5
75:6 75:20
75:22 77:8
78:9 78:12
78:18
78:23
78:24 79:9
79:11
79:25 80:4
80:16
80:24
80:24 81:3
81:4 81:7
81:7 82:15
82:16
82:19
82:20
82:22
82:23
82:24 83:1
84:16
84:18
86:21
87:22
87:24
90:17
90:22 91:9
93:20 95:2
95:7 95:9
97:8 97:11
99:16
99:20
99:23 101:23
103:6
104:7 104:16
105:23 106:4
106:8 108:20
109:3
109:9 109:14
109:17 111:3
111:7 111:16
111:22
111:24
112:15
112:16
112:16 114:9
114:12
114:15
117:22
117:25 118:3
118:23 119:5
119:5
119:8
119:9 119:12
119:12
119:12
120:13 121:8
121:13
121:15
122:18
122:23 125:5
125:7 125:11
125:20
125:24 128:8
129:8
130:8 130:13
131:16
131:20
134:18
134:24 135:3
135:4
135:6
135:8
135:9 135:10
135:12
135:15
136:25 137:4
137:6 137:10
137:13
137:20 143:9
143:11
143:16 148:6
148:8 150:17
152:11
152:25 153:7
153:10
153:11
153:13
153:18
153:20 154:4
154:6 154:14
154:15
154:18
154:24 155:8
156:15
156:20
158:25 159:4
159:7
159:8 159:10

159:13
159:15
159:16
159:18
159:21 160:4
160:10
160:14
160:20
160:22
160:24 161:1
162:16
162:18
162:20
162:23
162:24 163:1
163:2
163:3
163:5
163:7 163:11
163:16
163:24 167:2
167:3 168:16
168:18
168:21
168:24 169:7
169:13
169:21
170:19
171:10
171:18 172:1
172:2
172:9 172:13
172:19
172:19
172:23
172:25 173:4
173:6
173:7 174:10
174:15
174:16
174:17
174:22 178:1
179:9 179:11
180:20 182:5
182:12
182:16 184:3
184:9
185:8
186:9 187:11
187:23
188:11
188:23
188:23 189:1
189:3
189:8
189:9 189:10
189:12
189:17
189:18
189:22 190:2
191:4 191:13
192:13
192:15
193:12
193:18
193:18
193:21
193:23 194:2
194:3
194:4
194:7 194:13
194:15
194:20
195:18
196:22
196:24 197:2
197:13
197:22
198:15
200:10 202:4
202:9 202:24
203:3 203:20
204:1 204:3
204:4
204:8
204:9 204:10
204:12
204:13
204:13
204:16
204:18
204:22
204:23
204:24 205:2
205:7
205:9 205:14
206:6 206:16
207:24 208:1
208:5
208:6 208:19
209:2 209:16
209:21 210:5
210:12
211:17
211:23
211:23 212:1
212:3
212:9 212:10
212:11
212:13
212:17
212:20
212:21 213:1
213:20 214:3
215:3
215:5
215:9 215:25
216:2
216:8
216:8 216:11
216:13
216:17
216:19
216:20
216:22 217:1
217:2
217:7 217:20
218:3
219:7
219:9 219:13
219:24 220:1
220:7
220:7 220:11
220:13
220:17
220:18
220:19
220:22 221:1
221:2
221:3
221:6 221:22
222:5 222:22
222:24 223:3
224:2 224:23
226:17 228:2
230:5
230:7 230:13
230:13
230:16
230:18
230:22
230:24
230:25 232:7
232:11
232:16
235:12
235:16 236:2
236:12
236:16
236:18
236:22 238:2
238:8
238:8 238:11
238:13
238:17
238:19
238:20

238:22
238:23
238:24 239:1
239:3

motions 7:3
7:10 7:16
7:23 7:25
8:2 8:3 8:12
8:18 8:22
9:2 9:21
12:3 13:25
14:6 24:11
24:16 27:2
28:6 28:12
57:16
67:14
71:21
81:10 83:3
93:23
94:23 112:20
119:15 120:7
135:19
143:17
159:22 160:8
160:11
160:19 161:4
161:7 162:17
173:11
179:24 229:6
231:4 239:13

motion's
14:10 14:17

Motions
7:19 7:22
8:13 24:4
24:8 24:17
24:25
68:16 84:9
231:7

motor
135:21 136:4
136:11
136:17
136:21 140:4
147:6

motoring
146:17

mount 86:8
91:12 92:6
93:1 100:8
107:21
110:10

mounted
86:1 91:21
94:2 94:8
94:9 95:23
96:19
101:1 101:10
110:3 115:14
117:9

mounting
85:12 87:5
88:6 88:22
89:24 90:6
90:7 90:12
91:14
91:20 92:8
92:14
92:16
92:18 93:5
96:7 96:11
96:16
97:16
98:13
98:18 99:9
100:5 100:13
100:24
101:14
101:16
102:12
103:18
103:20 104:3
104:8 104:18
104:25 105:9
105:13
105:22
106:12
106:17
106:24 110:7

move 28:11
30:11 50:2
57:17
58:12
58:20
67:15
68:11
71:22
72:19 73:2
74:22 78:3
81:11 82:8
83:1 83:4
84:2
105:14
112:22 114:2
120:9
121:4 121:11
123:7 135:20
136:19
159:12
160:15 161:1
161:18
162:12 163:5
163:9 173:13
174:6 174:15
189:19 191:3
194:13 205:7
210:25
212:17
216:25 221:1
223:25 231:6
232:2 232:10

moved
159:23 160:1

movement
126:11
126:18
142:23

mover
174:14
189:16
194:13 205:6
212:17 221:1

moves
126:12 190:3

moving
40:22 126:8

muffler
138:12

Multi-Housing
185:11
185:14

multiple
74:11
97:23
98:24
111:9 128:18
159:2

multiple-zone
36:19

Murdoch 18:18
18:20

myself
111:6
128:8 129:12
134:15
153:17
158:22
169:24
198:13 200:7
203:17
210:11 211:6
224:23 225:9

228:2

N

NAC 138:5

name's
120:5 224:5

NASFM
200:11
202:21

Nate 235:9

Nathan 235:7

National
21:14 41:9
48:10
54:11 64:3
114:11
114:21
114:23 137:3
137:12
179:16
179:19
180:18
185:11
185:14 186:5
192:18 197:1
197:21 202:8
202:11 208:4
215:8 219:12
223:2 224:10
226:16

nationally
42:11

natural 21:22
73:14 74:5
74:14 74:18

nature
64:10
91:23 146:12
182:6 190:13
194:25

NAVSEA 16:23

Navy 16:23

Neal 163:8
163:8 163:17
163:18

nearest
5:17 6:14
25:21 26:20

NEC 139:8
148:21

necessarily
13:4
201:11
213:18
219:16
226:25

necessary
13:15 34:9
45:10
69:21 150:11

negative
87:16 117:19
124:13
178:20 192:5
196:14
207:10
214:20
218:24

Neil 64:2

neither
234:18

NEMA 137:22
139:18
140:19
145:20
147:23 148:8
152:10
157:17
157:24

NEMA's 137:15
137:19 139:3

network
146:20
154:11 157:5
157:12
157:15

neutral 79:12

Nevada 5:7

Newark 143:15
152:18

newly 101:17

Newport 23:6

news 23:6
153:25

NFFF 179:23
180:1 180:11

NFPA 5:2
5:6 5:15
6:15 6:18
6:25 7:1 7:8
7:12 8:16
9:6 9:22
10:6 10:19
10:25
11:15
12:25 13:8
14:24 15:4
15:9 15:17
15:19 16:2
16:6 16:9
16:17
16:18 17:4
17:15 18:6
18:7 18:17
19:6 19:24
20:7 23:23
24:8 24:21
25:6 25:19
26:21 27:2
28:6 28:6
28:6 28:7
28:7 28:7
28:7 28:7
28:8 28:8
28:8 28:8
29:16
29:19
33:10
33:25 36:1
37:15
38:17
38:19
44:20 45:1
50:13 51:2
57:13
57:16
57:18
57:25 58:6
58:11
58:13
58:19 59:4
59:16
62:15 64:5
65:21 66:1
67:11
67:14
67:16 68:3
68:9 68:13
71:15
71:21
71:23 72:5
72:13
72:18
72:20
73:11
73:20 74:8
74:24 75:2
76:2 79:14
80:3 80:8

81:8 81:10
81:12
81:19 82:2
82:6 82:9
82:23 83:3
83:5 83:12
83:20
83:25 84:3
85:16
85:17 87:5
88:12
88:13
88:22 89:2
89:5 90:2
90:24 91:2
91:7 91:13
92:24
92:25 93:3
93:15
93:25
97:18
100:2
100:4
102:4 103:13
104:8 107:17
108:22 112:5
112:18
112:23 113:7
113:15 115:2
115:8 116:24
117:14 120:7
120:8 120:10
120:20
120:25 121:3
121:5
122:3 125:12
126:23
126:24
127:13
127:15
127:15 128:1
128:1 128:10
129:14 131:1
131:2 133:15
133:17
133:18
133:20
133:23
135:19
135:21 139:2
139:7 139:14
140:3 141:17
141:21
141:22
143:19
144:18 147:8
148:25
150:19 151:2
153:6 160:21
160:23
161:19
161:25 162:6
162:11
162:13
162:16 163:1
163:23
164:19
164:23 165:3
165:18
166:21 167:8
168:2 169:19
169:25 173:8
173:12
173:14
173:16
173:19
173:25 174:5
174:7 178:17
179:22
186:18
186:19
190:19 192:2
193:8
193:9 196:11
198:7 200:15
201:1
203:9 203:14
207:7 214:17
218:21 227:1
228:6 228:10
228:20
228:25
229:11
229:13
229:24 231:1
231:5
231:8 231:14
231:20
231:25 232:4
233:23 235:4
238:23
238:25 239:2
239:8 239:14
239:15
239:15

nfpa.org/2023techsession 25:4

NFPA-approved 170:24

NFPA's 7:4
7:14 9:20
16:7 27:1

NFRA 73:2
77:11 182:15
197:12
209:20
232:10
232:18
236:21

NHTSA 151:10

Niantic 23:13

Nick 184:6
203:2

night 199:12

nine 86:1
86:4

nine-inch 92:7

NIST 62:20

NITMAM 24:18 105:6

nitpicking 122:1

nobody 135:17

non 115:4
199:20
228:22

noncombustible 60:2
198:25

none 41:24
48:25 53:5
56:23 57:4
57:14 65:9
66:16
67:12
70:21
71:16
71:19
80:18 81:9
98:3
112:19
140:14
151:16
171:20
172:15
188:13
188:14
193:14
211:19 216:4
220:3 229:14

230:9
231:3 233:16
233:25 238:4
239:9

non-HDPE
108:12

non-listed
37:11 48:19

non-PVHO
170:23

non-rated
43:20

non-sprinklered
227:6

nonstandard
90:6

nope 188:14

nor 36:11
44:21
82:18
82:20 162:22
162:24
234:18

normal 127:20
144:8 144:20

normally 33:4
166:22

North 20:9
20:10 115:1

Northwest
64:3

Norway 146:23

notable 74:12

notation
168:3

note 8:9 11:6
32:8 39:12
111:10
233:24

noted 14:12
39:2 44:5
44:16 77:1
192:9 196:18
214:24

notes
176:22 219:3

nothing 98:24
103:22
172:17 197:7
227:12
227:15
234:11
237:18

notice
24:18 121:24
203:20
236:23

notices 8:14

notification
197:24
200:18

notified
160:21
238:25

notify 201:21
202:15

noting 5:10

novel 166:8

November
151:3

NTSB 151:10

nurse
170:13
170:14

O

object 78:1

objective
31:4

observation
49:4

obstruct
180:5

obstructing
184:17

obstructions
175:10

obtaining 8:9

obvious
184:19

obviously
101:10 102:4
186:21 210:3
217:18
225:23

occasions
64:15

occupancies
19:2 21:2
64:9 176:8
177:25 178:9
191:12
191:19
195:17 196:3
206:15 209:6
214:2
214:9
218:2 218:13
221:11
221:21 222:4

occupancy
62:8 65:2
169:17 175:4
175:15 177:7
206:24
213:17
213:19
221:19

occupant
165:4

occupants
46:4 65:7
164:13 165:5
175:5 175:25
225:1

occur 45:20
116:5
138:7 176:9

occurred
65:13
144:4 170:25

occurrence
140:15

occurrences
46:4

occurring
180:22
213:16

occurs 149:25
150:2

O'Donnell
145:17
145:18

offer 32:13
34:12
45:14 49:1
52:19
61:22 70:2
75:19
86:24 116:21
118:25 124:4
139:25

166:12 177:9
191:6 195:11
206:8 213:22
217:22
221:24
234:21
236:24

offered 197:8

offering
147:17

Office 184:7

officer 8:4
11:22
12:20
13:12
13:13
13:22
13:25 14:2
25:12
25:15 119:20
119:20 120:7
161:10
161:13
239:12

officers 5:25
10:14 26:4

official
153:7 197:24
202:15
223:23 227:2
227:3

officially
13:11 200:12
239:15
239:18

officials
192:25

offset
180:9 210:16
210:21
210:23

oh 79:4 103:4
160:18
171:20
194:12
198:11 210:9

okay 31:4
64:2 78:22
99:24
137:9 153:22
158:25 159:3
160:10
160:17
162:20 169:5
172:12
172:15
173:10
188:10
193:17
194:15
197:10
197:18
198:10
198:11
203:19
211:16
211:19
211:22 216:7
220:6 230:12
231:3
238:4
238:7
239:7 239:9

old 101:17

older 102:9

omit 50:23

one-eighth
49:5

ones 60:8
210:25

ongoing 69:12

online 190:14

onsite
31:16
39:13
39:24 40:4
148:22

onstage 18:19

onto 116:8

open 12:9
29:7 29:8
33:4 33:9
33:20 38:8
44:15
45:23
46:12 47:2
47:9 54:8
63:23
70:20 77:7
87:21
99:13 117:22
125:5
129:5
143:8 154:11
168:16
171:15 179:9
192:13
196:21
207:24 215:3
219:7 222:22
236:16

opening
42:2 57:1

openings
43:16

openness
143:24

opens 201:9

operable
127:7

operated
138:4

operates
145:22
145:23
146:10

operating
219:22

operation
35:7
113:18
127:11 157:9
164:7 164:18
165:2 187:15
229:23

operational
54:5

operationalized 26:18
28:14 29:15

operations
35:3 113:1
113:10
113:25 114:6
165:22 171:5
176:5

operators
69:19 183:20

opinion 42:4

opponents
12:24

opportunities
97:23

opportunity
107:5 154:20
170:7 172:16

188:15
193:15 195:7
209:10
211:20 216:5
220:4 230:10
238:5

oppose
75:10
90:11
99:16 103:17
104:7 112:15
154:6 168:23
184:3 185:13
197:17 210:5

opposed
60:5 60:12
60:23 104:21
111:22
116:19
118:18 128:2
185:15 186:8
209:22

opposing
172:2 187:11
209:24

opposite
208:7

opposition
12:12
14:19
78:11 88:2
97:10
103:6
103:7
106:8 108:19
125:7 125:24
131:20 167:2
168:21 169:7
178:1 180:19
182:15 186:1
191:13
195:18 197:2
197:12
200:14 202:9
206:16 208:5
209:20 214:3
215:9
218:2 219:13
222:5
223:3 226:17
235:12

option 54:2
188:9

options
60:1 146:16

order 7:17
11:23 14:2
14:5 25:1
28:8 79:3
88:7
124:19
126:13
134:24 159:4
163:20 204:1

ordered
6:13 6:13
26:19

organization
5:15 25:19
199:13 226:7

organizationa l 12:14
12:17

organizations
199:14

orientation
92:14

original
66:19 69:14

originally
69:24

O-ring 115:19

Orlando 22:15

others
95:13 151:14
223:5

otherwise
80:11 200:24

ought 201:23

ours 96:6
158:16

outcome
180:24

outgoing 21:8
21:19 22:13

outlet
31:23 33:6
70:13 147:7

outlined
168:25

output 70:7
70:15
149:2 149:20

outrage
198:16

outright
147:16

outside
11:3
116:11
141:23
148:24
151:24
175:19

outstanding
16:6

overcome
51:20 69:22

overly 138:23

override
33:18 56:8

overseen 91:6

overwhelmingl y 144:16
157:21

owner 44:8
99:25
128:9 128:13
225:2

owners 45:7

owner's 47:25

owns 145:23

oxygen 165:21
166:2

OxyHealth
171:9 172:3

P

Pacific 64:3

package 31:21
222:11

packages
227:9

packed
45:20 46:10

page 14:12
30:8 58:11
68:9 72:18
82:6 83:25
113:22 121:3
136:16
162:11 174:5
231:25

Pages 162:19
Palisade
22:22
panel 87:10
94:3 94:14
96:8 96:9
100:5
101:3 109:7
panels 92:3
94:1 94:7
94:12
94:17
96:12
96:16
96:19
99:12
99:14
100:8 100:20
101:13
107:16 109:7
139:8 143:4
paragraph
167:7 195:21
199:17 218:6
222:8 226:22
paragraphs
123:2 126:25
226:23
parallel
91:21
96:13 101:15
parameters
37:16
paramount 5:8
Parker
81:15
81:17
82:13 83:8
83:10 84:7
86:24 87:1
87:20 111:25
112:3
parking
150:24 151:2
partial 51:13
53:2 53:7
55:22
95:17 199:1
partially
45:23
50:20
50:24 51:6
51:16
52:13
52:24
52:25
53:25 55:8
56:12
partially-supplied
51:23
participant
7:6
participants
7:8 16:6
119:17 161:8
participated
98:1 144:18
participating
12:11 119:18
participation
15:1 15:21
143:22
235:15
239:11
239:17
particular
64:19 85:2
90:8 172:4
177:3 201:17
233:10 234:9
particularly
65:14
parties 139:9
partition
88:7 90:5
93:14
94:12
94:16
95:13
95:17 96:4
96:12 97:2
97:3 98:8
98:10
98:17
98:19 106:12
106:13 110:2
partitions
84:15 85:1
85:2 85:6
85:16
85:22
85:25 86:6
87:6 88:25
90:9 90:22
91:8 91:13
91:21
91:23 92:6
93:2 93:5
94:6 95:10
95:11
95:20
95:25 96:2
96:19
96:23
97:17 99:5
100:1
101:5 101:10
104:8 104:16
105:1 106:21
Partners
17:19
pass 9:2
108:12
184:17
passage
111:15
129:19
passed 9:11
27:13
40:21 41:3
71:14
100:2 107:17
108:1 129:16
144:16
159:21
204:10
217:15
221:11
230:25 236:3
236:13
passes
14:10
57:12
73:13 111:16
111:23
119:13 135:6
135:15
152:11 154:4
159:10
159:18
passing
33:7 191:3
passive
61:3 66:3
66:4
122:23
122:25 123:4
123:10

123:11
123:16
123:21 125:2
126:15
126:21 127:1
128:1 128:14
129:1
129:2
129:2 129:21
129:23 130:5
130:7
131:7 131:24
132:7 132:11
132:15 133:1
133:17
133:19 134:7

past 36:1
62:11
131:9 175:22

path 184:17

paths 209:10

patient 23:22

patrons
141:10

pay 5:12

peak 151:19

penalized
147:11

penetrations
133:5

Pennsylvania
145:24

people
48:13 75:6
97:23
102:4 104:22
105:16
106:17
106:19 107:3
107:6
109:2 109:22
110:11
111:11
133:15
143:20 144:6
144:10
155:21 156:2
199:10
199:11
199:25
226:13
227:11

per 8:6
9:10 12:25
45:1 97:18
148:20
157:14
176:14
182:22 183:4
183:5

percent 44:12
166:1

Perfect
237:23

perfectly
104:5

perform 39:14
64:12 132:18

performance
35:23
37:14
59:12
60:22
127:7
141:5
183:2 183:7

performed
33:1 62:20
133:13 176:6
177:6

perhaps 79:19
147:21

period
16:15 24:19

periods 226:4

permanent
142:6

permission
190:18 195:4
195:22 218:7

permit
46:22
117:4
184:3 190:12
193:2
193:5
193:7
193:8 194:22
197:5 197:14
197:16 198:4
200:25
201:15
202:17 203:7
213:12
215:19 217:9
217:12
217:17 222:8
229:10
229:15
236:11

permits
37:8 181:1
190:20 195:5
195:6 200:21
200:23
203:10
203:12
203:12
203:14

permitted
12:4 60:11
179:6 190:17
195:3
198:5
198:9 202:16
207:20
208:16
221:10 223:9
223:11
227:24 229:7
229:8
229:8 229:12
229:15
229:16
229:18 233:8
236:1

permitting
213:4 213:7

perpendicular
94:9 96:1
99:14 101:15

person 5:8
6:17 8:6
43:22
143:5
145:3 186:14
203:21

personal
10:24 25:8
171:3

personally
47:6 128:14

personnel
31:16
31:17 33:17

perspective
47:25 112:2

pertinences

52:10
Peter 231:10
Peterkin
168:19
168:19
Petroleum
20:15
20:21
21:17
67:16
67:21
67:22 68:1
68:3 68:6
68:9 68:13
70:4 115:8
143:14
152:18
Philadelphia
199:25
phone 5:21
11:15 26:1
28:21 155:17
phones 5:21
25:25
phrase 39:6
physically
10:9 129:5
PI 75:4
pick 184:21
picked 102:6
picking
102:18
pick-up
201:18
picture 71:24
72:4 72:5
75:6 75:21
picture/TV
74:6
pile 96:8
pilot 31:21
31:22 32:1
32:1 32:4
32:5 32:11
32:14
32:19
32:20 40:6
40:23
Piping 18:13
placed
37:16
116:6 176:12
176:18
placement
176:15
places
180:7
190:8 213:9
placing
141:10
plan 56:14
100:11
131:14
219:15
219:18
plans
213:14
213:17
Plants
20:16 21:23
plastic 48:20
59:9 59:11
60:19
60:23 61:5
61:10 87:6
90:9 151:6
176:12 183:1
plastics
60:14
60:20
60:21
64:15
89:14
89:15 90:2
183:1
played 6:5
26:9
playing 229:4
please 5:9
5:12 5:16
6:19 7:20
8:9 11:6
12:13
13:18 15:3
15:7 16:7
17:7 17:17
18:9 18:19
19:7 25:20
28:17 29:3
29:8 31:3
38:9 39:16
39:22
42:21
43:10
43:12 47:3
49:18
49:23 50:8
54:8 54:24
54:25
57:20 59:1
61:19
63:24
65:18 67:5
67:18
68:17 69:1
71:8 73:8
77:8 78:7
78:9 78:21
79:7 81:15
81:16
84:10
84:23
87:22
90:11
90:17
93:18 95:2
97:6 97:8
99:18
99:20 101:22
101:25 103:1
104:7 104:12
105:24 106:5
107:9 108:16
109:13
110:19 111:2
111:4 111:18
112:11 113:3
114:20
117:23
117:25 119:9
119:25
120:14 121:9
125:5
125:8 125:22
128:5 129:10
130:8 130:11
131:18
134:13
134:25
135:11
135:12
135:13
135:25 137:1
137:10
137:22
139:19 143:9
143:11
145:16 148:2
148:4

148:4 150:15
152:16 153:3
153:15 154:6
154:8 156:17
158:20 159:4
159:7
159:8
159:9 159:15
159:16
159:16 160:5
161:21
162:17
163:15
168:16
168:18 169:5
169:22
170:11 171:7
171:21 173:1
173:15
174:11
174:21 179:9
179:12
180:16 182:2
184:3
184:5
185:9
186:2 187:19
189:4 189:13
190:1 192:13
192:16
193:24 194:8
194:19
196:22
196:24
197:10
197:19
198:10
198:11 200:5
202:6
203:1 203:15
204:1
204:4 204:19
205:3 205:13
206:12
207:24 208:2
208:20
208:24
209:18 210:5
210:9
211:4
212:5 212:14
212:25 215:3
215:6 216:14
216:23 217:6
219:7 219:10
220:14
220:23 221:5
222:22
222:25 224:3
224:8 224:21
225:7 226:14
227:25
230:19
231:10 232:8
232:15
236:16
236:19
238:14

pleased 16:18

pleasure
15:12 16:5
24:9
119:19 120:6
161:9 239:11

plenty 66:9
77:21 103:20
107:5

plugged 150:1

plus 149:13

podium 161:6

point 32:2
32:4 41:13
41:19
52:23
73:18 74:7
79:3 94:20
102:6 103:23
108:20
109:10 116:1
130:24
137:18
139:21
147:24 148:9
150:17
150:19 152:5
160:7 201:13
203:3 226:1

pointed
152:10
154:22
183:17

pointing
86:15

points
93:24 133:15

polyethylene
87:6 89:11
90:21

polypropylene
89:11 89:16

Poole 25:12
25:13
25:14
29:20
30:15
30:23 31:2
34:11
34:14 38:7
39:11
39:16
39:19 39:22
39:25 40:3
41:5 41:22
42:14 43:6
43:10
45:13
45:16 47:1
47:18 48:7
48:22
49:12 50:3
50:7 52:18
52:21 54:7
54:23
55:14
56:20 57:3
57:22
58:16
58:21
58:25
61:21
61:25
63:22
65:17
66:13
66:24
68:14
68:22 69:1
70:1 70:19
71:2 71:19
72:2 72:22
73:4 73:8
75:18 77:6
78:6 78:17
79:2 79:4
79:6 79:24
80:15
80:23
81:17
82:13
83:10 84:7
84:12
84:18 84:22

86:23 87:2
87:20
90:14
93:17
94:25 95:6
97:5 99:17
101:24 102:2
102:25
104:10 106:1
107:8 108:15
109:12 111:1
111:7 111:10
112:3
112:8
113:5
114:7 114:14
114:18
116:20
116:23
117:21
118:22 119:4
120:4

poor 59:11

poorly 105:21

population
164:4

port 32:13
32:15 32:16

Portable
19:15

portion 50:17
53:3
126:22
235:22

portions 53:8
53:12
91:18 147:24

ports 31:22
150:4

Portsmouth
16:23

pose 69:19
118:7
156:6 156:8

posed 118:9

poses 46:2
156:11
156:13

position
12:18 13:1
13:3 13:7
27:24
34:12
41:15
44:15
45:15
46:12
52:20
61:23 70:3
75:20 77:2
77:25
86:25 100:14
116:13
116:21
118:16 124:5
129:2 139:25
157:18
166:13 168:9
176:16
177:10 191:7
192:7 195:11
196:16
200:11 206:8
213:22
214:22
217:22 219:1
221:24
222:15
234:21

positioning
96:7

positions
146:2

possible 35:6
51:7 59:8
144:11
144:12
151:21

posted 6:15
24:24
26:21 28:9

post-occupancy
123:16

potential
35:8 35:16
36:7 37:19
43:25 46:8
46:9 48:13
62:7 74:4
115:20
118:10 141:5
179:7 207:21
233:12

potentially
37:23 46:2
53:11
74:15
180:6 186:11
208:11
221:15

pounds
115:7 116:10

power 18:3
113:8
114:4
138:3
140:6 140:10
140:11
140:13
140:18
140:23 141:4
141:16
142:15
142:19 143:2
143:6 151:19
151:20
151:20
151:21
151:22

Powered
112:24 113:8
113:16
113:23

powerful
210:21

practice
115:15
151:15 171:6
183:22

practices
36:15 42:8

precedent
74:10

preceding
37:1

predetermined
32:17

preemptively
128:9

preface 12:13

premature
33:12

prematurely
74:19

premiere

199:14

premises 21:6
22:24
23:14 139:16

preparation
133:12

prepared
201:24

preplan
201:24

prescribed
53:13

prescriptive
34:19

presence
8:7 44:18
52:1

present
10:9 11:25
13:1 16:18
17:1 17:12
18:1 18:23
18:24
19:14
19:15
19:18
19:19
20:14
20:15
20:16
20:17
21:23
21:24
21:25 22:5
22:6 22:7
22:10
22:11
22:19
22:25 23:3
23:5 23:14
23:16
23:17
25:16
29:18 45:8
57:20
59:19
60:16 61:7
61:12
66:10
67:18
81:16 83:8
113:3 120:14
135:24
161:22 164:2
173:15
231:10

presentation
12:5 130:2
150:18

presentations
14:7 25:1

presented
12:16
24:12
29:23 58:1
67:22 72:8
81:22
83:15 87:7
113:11
120:18 136:5
162:1 173:20
231:15

presenting
167:1

president
38:13
74:21 179:17
189:15

presiding 8:4
10:14
11:21
12:19
13:12
13:13
13:22
13:24 14:2
25:11
25:15 119:20
119:20 120:6
161:9 161:13
239:12

press 81:1
81:4

pressure
31:20
31:22
31:23
31:24 32:2
32:10
32:11
32:18
32:24
32:24 33:3
33:5 33:21
35:25 36:3
37:12
37:20
43:24
45:20
45:25
46:10
46:21
48:21
51:19
51:20
53:10
53:16 56:7
69:6 69:7
69:13
69:21 70:7
70:13
70:15 163:22
164:1 164:11
164:17
164:24 165:2
166:3 167:19
169:16

pressures
43:15
43:20
53:13
69:18
69:22 165:21

pressurize
34:5

pressurized
165:25

pre-technical
27:24

pretty
126:6 198:21

prevent 32:20
34:3 70:15
70:16 129:19
147:16
149:15

preventing
180:13

prevention
145:10
199:14

previous
103:25
122:21 131:2
178:9
182:8
190:7
190:7 191:20
192:22 196:4

197:9
199:3 206:24
211:15
214:10
218:14
229:18

previously
18:10 144:23
217:15

primarily 7:1

primary
44:3 164:5
167:18

principal
177:24
191:11
195:16
206:14 214:1
218:1 222:3

principles
166:5
175:5 184:15

prior 7:9
8:17 8:23
9:3 9:19
10:1 11:7
11:19 27:7
29:1 96:24
97:14
117:1 117:16
132:4
133:8 181:22

privacy 95:19
96:2 99:6

privilege
10:7 12:10
235:9

proactively
78:3

probably 75:3
102:5 103:14
122:17 193:9
209:12
210:15
210:16
210:18
226:18
234:14

problem 59:22
61:8 74:4
79:5
107:18 108:2
153:21
181:23 184:2
199:20

problematic
151:5 223:14

problems
130:16
228:14

procedure
40:18 109:6

procedures
5:13 40:16
40:24 77:4
79:16
80:22
96:10
96:15
96:25 97:1
168:14
217:14

proceed 11:24
24:5 30:16
31:3 42:25
43:11
49:21 50:8
58:16 59:1
68:15 69:2
72:23 73:9
82:14 84:8
84:23 111:17
111:24 114:8
114:19
114:20
119:22
120:12 121:7
136:24
137:10 160:3
162:15 163:6
163:16 174:9
174:22
189:11 190:2
194:6 194:20
203:22 205:1
205:14
212:12 213:1
216:21 217:7
220:21 221:6
232:6 232:16
238:21

proceeding
160:19

proceedings
8:19

process 7:2
7:6 7:9 7:13
9:21 11:10
13:9 15:20
15:20
15:24 17:5
17:16 18:7
18:18
19:25 25:7
27:1 29:14
42:6 78:15
105:5
105:5 143:20
144:9 144:19
144:19
144:20
144:25 145:1
154:14
154:16
154:18
166:21
169:18
169:19
177:18 193:2
193:8
193:9
197:6 197:24
201:7 201:25
202:18 203:7
213:7 213:14
213:18 217:9
217:12
217:13
217:14
217:17 235:4
235:15

processed 9:3
24:13

processing
7:2

product 101:4
107:2

Production
71:24
71:25 72:1
72:6 72:7
72:7

products
20:23
90:20
98:21
98:23 107:14
107:16
107:24
107:25

108:11
108:12
146:12
156:24

professionals
139:15 226:3

progress
103:17

prohibit 34:1
38:5 115:9
187:6 229:25

prohibited
6:24 26:23
38:2 180:23

prohibits
175:18

project 64:19
144:2 186:25

projectile
46:1

projects
64:10 64:17

propane 68:20
69:9
114:11
114:22
114:23
114:24
114:24
114:25 118:2
118:7 118:17

proper 14:4
14:4 60:22
93:9
101:20 127:3
127:10
180:10
209:10

properly
32:12
33:13
40:20 125:15
132:3 154:19
155:24
155:24
158:16 184:4

property 21:9
140:20 175:6
190:22
201:17
205:19
221:15

proponent
197:15 226:8

proposal
62:10 63:3
63:21
85:21
94:15 127:14
184:15
200:16 202:2
205:16

proposals
103:21

propose 92:23
105:6 203:17

proposed
36:24 49:9
62:3 63:5
63:13 64:5
64:8 64:24
65:3 66:23
70:5 70:13
70:14
73:25
76:22
78:13
86:12
86:17 88:6
88:9 93:5
97:1 100:4
101:9 101:19
103:20
105:10
105:15
105:19 110:9
122:14
142:12
142:21
147:15
148:10
163:20
164:15
165:10
165:13
174:24
174:25
176:21 177:6
178:7
181:6 182:11
190:4 190:10
190:19
192:10
196:19
206:22
214:25 219:4
223:13

proposing
88:15 128:3

protect
31:6 44:4
46:16 46:20

protected
46:15
115:5 115:18
227:21

protection
20:13 21:3
22:10
37:18 46:5
48:16 52:5
53:21
57:19
57:25
58:14 61:3
62:18 66:3
66:4 84:13
90:23 120:11
120:21
122:24 123:1
123:5 123:17
123:21
124:19
124:22 125:2
125:13
125:15 126:7
126:9 126:10
126:13
126:15
126:17 127:2
127:9 129:22
129:22
129:24 130:5
130:7 131:25
132:12
132:15
156:19 175:6
175:15 180:7
180:10
190:22
205:19
208:12
221:15
222:19
224:16
224:19
235:11
235:21 236:6

protocol
98:23
98:25 98:25

proven 85:13

provide
5:25 10:18
11:15 26:4
32:19 38:9
46:23 47:3
53:2 54:8
62:3 62:5
63:9 63:24
65:3 75:10
75:17 88:8
91:11 92:8
92:9 93:1
93:8 95:19
96:15
97:16
97:24
123:4
125:5 128:11
141:13 143:9
146:8 146:16
147:18
168:16 171:4
179:10
192:14
196:22
207:25 215:3
219:7 222:18
222:22
236:16

provided
36:10
41:16
43:15
50:14
50:20
52:15
91:18
92:15
92:17
92:21 121:20
124:18 168:8
176:20
178:25
207:14 213:9
213:11

provides 52:5
77:19 126:16
143:4

providing
9:25 27:6
39:3 60:1
78:4

proving 69:18

provision
50:22

provisions
96:16
150:9 179:22
181:24 182:5
190:25 191:1
236:8

proximity
149:18

PSI 35:25

PSIG 69:7
69:14
69:19
69:25 70:9
70:9 70:13
70:15 165:25
166:3

PTE 149:17

public 6:5
58:22
59:13 60:6
62:1 63:4
66:15 67:1
73:5 73:22
73:24 75:2
75:23 76:3
76:4 76:5
76:8 76:9
76:10
76:15
76:17 77:3
78:18
80:16
80:25 87:4
87:13 88:8
88:14
88:20 94:6
95:15 98:2
117:7
124:9 124:16
124:16
127:18
127:22 137:4
137:19 139:3
144:6 146:17
163:13 167:4
167:9 167:10
167:11
167:14
167:15
167:16
167:23
167:24 168:5
168:10
168:12
171:19
172:14
172:20
174:18 178:3
178:22 180:2
180:7 188:11
188:24
189:23 190:3
192:7 193:12
193:19
194:17
195:20
196:16
204:14 205:7
205:10
206:18
207:12
211:17
211:24
212:22
214:22 216:2
216:9
217:4
218:5
219:1
220:2
220:8
221:4
222:7 222:15
230:7 230:14
232:12
234:25 235:1
235:17
235:18
235:22
235:23
235:23 236:2
236:7 236:12
238:2 238:9

publication
9:13 27:16

publications
76:14

publicly
24:24 88:11

publish 40:10
153:25

published
7:17 9:16
11:23
27:20 30:2
36:14 58:4

68:1 69:17
72:11
81:25
83:18 113:13
127:5
136:9 137:20
150:20 162:4
173:23
231:18

Puchowski
166:23
166:25

pull 132:23
147:19

pulling
109:25

pump 54:15
55:21 56:3

pumping 50:12
50:21
50:24
51:17
51:19
52:13 53:4
53:18 54:1
54:4 55:24

pumps 55:25
56:8 147:14

purpose
8:11 9:25
25:17 27:6
44:3 46:19
48:18 49:9
52:9 56:16
92:21
92:25
95:18 125:12

purposes
95:16 99:6
142:4 142:20

Pursuant 38:3

pursue 8:8

pursued
160:22 239:1

purview
166:16
177:13
234:24

push 226:9
227:18

pushing 40:13

puts 106:20
130:4 233:18

putting 41:14
187:6 199:12
199:16 201:8
202:22
210:15 227:9
227:13
228:24

Q

QR 11:3

quantities
230:1

quarter
86:2 86:5
92:20 176:16
176:17
176:18 177:2

quarterly
45:3

quarters
175:4 175:20
176:14 191:1

quarter-
turn 33:14

question 11:9
11:19 29:1
29:4 36:21
111:6
111:8 111:13
111:14
111:19
111:19
111:22
134:16
134:18 135:5
135:7 155:23
156:7 158:23
159:1
159:6 159:11
203:18
203:20
203:23 204:9
204:10

quick 62:16
62:19
62:23
63:18
65:15
176:4
228:4 229:5

quick-connect
32:13

quietly
6:14 26:19

quite 155:11

Quiter 15:7
15:11 17:2
17:14 18:5
18:16 19:5
19:23
23:23 79:1
79:3 79:5

quorum 8:16
8:19 8:23
9:3 25:16

quote
100:15
225:14

R

rabbit 102:8

radius 148:13
148:17
149:10

raise 93:24
108:20
109:10

raised 144:22
144:24

raises 175:1

Raleigh 20:10

range 35:4
35:21 116:10
179:3 191:17
196:1 207:17
214:7 218:11
222:13

ranging 115:7

rapidly 62:24
116:3

rate 46:23
118:12
182:22

rated 46:21

rates 53:12

rather
97:14 101:15
147:25

rating 62:4
62:6 63:7

63:16 237:19
ratings 35:25
rationale
60:13
65:22 233:4
reach 34:17
reached
32:5 32:19
225:5
readdress
131:4
reading 23:21
234:7
reads 51:15
100:15
real 85:14
193:1 228:4
reality
55:8 138:6
really
56:16
60:25
104:5 109:17
122:5 123:18
138:25
149:17
157:15 197:5
197:6 198:18
200:16
205:22 211:2
221:13
226:12
226:20
rear 28:18
85:19
85:23 116:9
reason
46:13 74:7
77:11
89:16 198:5
reasonably
164:23
reasons 148:1
164:14
168:24
232:21
recalls 141:2
received 76:4
87:15 167:10
receiving
20:8 117:7
recent 155:18
recently
20:19
21:10 170:22
receptive
202:10
recess 119:24
recipient
16:8 16:20
18:7 19:6
recipients
20:1
recognition
16:16
recognize
11:22 16:5
66:19 145:4
recognized
42:11
recognizing
16:8
recollection
63:2 63:20
recommend
34:23
42:20
69:24
98:14 172:23
172:25 173:5
173:6
189:1
189:3
189:9 193:21
193:23 194:2
194:4 204:16
204:18
204:22
204:24 211:1
212:1
212:3
212:9 212:10
216:11
216:13
216:18
216:19
220:11
220:13
220:17
220:19
230:16
230:18
230:23
230:24
238:11
238:13
238:18
238:19
recommendation 8:25
186:18
186:19
recommendations 9:23 9:25
27:3 27:6
133:24
186:17
recommended
14:9 14:13
38:1 59:14
73:12
recommends
189:8
reconnect
115:4 115:18
118:20
reconnection
118:4
record 10:3
12:2 27:23
39:22
42:21
49:18 67:5
71:8 81:4
90:17
106:4 107:11
108:17
109:15 111:4
112:11
117:25 119:9
135:13 159:9
159:16 173:1
189:4 193:24
204:5 204:19
212:5 216:14
220:14
230:19
238:14
recording
6:24 26:23
Recycling
180:19
Red 12:23
redo 110:21
reduce

54:17 236:9
reduced 92:18
reducing
15:23
32:24
33:20 41:2
redundancy
50:11
53:24
53:24
54:17
54:18
54:19 66:2
redundant
51:18
51:24
55:19 56:8
reenergized
116:2
refer 14:11
42:2 66:19
reference
142:19
162:18
223:19
233:23
233:25 237:2
237:3 237:5
references
223:14
233:15 237:5
237:14
referred
223:5
refers 233:4
refilled
117:16
refilling
117:4 117:8
reflect 13:4
reflects 42:3
refueling
116:17 152:3
refused 171:4
regard 37:6
49:4 99:1
105:3 219:20
regarding
6:21 30:21
34:23 158:3
regardless
10:14 142:14
211:11
regards
157:18
157:20 158:1
205:18
regenerative
151:20
regional
145:21
registered
10:8 28:20
170:13
registration
6:20 8:10
10:11
regs 7:1
7:4 9:1
9:5 9:10
152:6
regulate
183:16
183:19
208:10
regulated
61:13
61:18
154:5
158:8
184:4
227:5 227:23
regulates
155:10
227:12
227:13
regulating
227:8
regulation
183:24
regulations
6:25 12:25
24:21
27:18 44:9
76:1 77:5
80:22
112:5 120:24
155:12 167:7
168:14
201:19
regulatory
114:25
Reiswig
24:4 24:7
reiterate
77:15 110:10
211:8
reject
30:24
39:10
41:23
42:12
42:16 43:7
48:23
49:14 50:2
50:4 52:16
56:21 57:5
63:3 63:21
68:21
68:23
70:22 71:4
76:7 84:16
84:19
86:21 114:13
114:15
118:23 119:6
124:7
135:9 167:13
236:12
rejected
63:14
73:22
75:24 77:4
80:21
167:4 168:13
169:9 236:7
rejecting
233:4
rejection
77:12 178:22
207:11
related
8:25 40:12
43:18 76:3
76:12
76:13
167:9 167:17
179:22
190:21
235:23 236:4
236:14
relates 52:23
235:16
relationship

100:10
relax 54:2
release 118:3 118:6 182:22
released 116:3 118:12
releases 140:16 141:8 142:8 183:3
releasing 116:1
relevance 97:2
relevant 74:8 146:15 147:24
reliable 19:9 36:4
relief 32:24 41:2 70:11 70:16 167:19
rely 38:25 108:9
relying 53:20 115:23
remaining 13:16 20:7 139:21 141:18 160:8 160:11
remarks 12:13 13:19
remember 60:20 130:1 192:13 207:24
remind 5:14 12:20 25:5 25:18
reminder 148:4
removal 116:14 117:5 145:12 179:1 207:15 236:8
remove 30:21 38:23 43:4 143:17 179:21
removeable 116:25 117:15
removed 50:25 82:25 101:22 117:1 117:16 160:25 163:3 209:6 239:4
removes 174:23
removing 39:7 52:24 116:19 118:18
reopen 32:9
reorganized 50:13
repair 18:15 135:22 136:5 136:12 136:17 136:21 141:2
repeat 121:23 215:10
replace 141:2
replacing 116:7 147:21
replicate 99:10
report 6:10 7:19 7:22 12:8 26:15 29:19 29:21 29:24 29:25 30:2 30:3 30:6 30:12 50:18 50:22 57:21 57:23 58:2 58:3 58:5 58:5 58:13 67:18 67:20 67:23 68:2 68:12 72:3 72:8 72:9 72:12 72:12 72:20 81:16 81:18 81:23 81:23 82:1 82:1 82:9 83:8 83:9 83:11 83:16 83:16 83:19 83:19 84:3 113:4 113:6 113:12 113:14 113:14 113:20 114:3 120:14 120:16 120:19 120:19 121:5 135:25 136:2 136:6 136:7 136:10 136:10 136:20 152:6 152:8 152:8 161:22 161:24 162:2 162:2 162:5 162:5 162:13 162:18 173:16 173:18 173:21 173:21 173:24 173:24 174:7 231:11 231:13 231:16 231:17 231:19 231:19 232:3
reported 30:11 58:12 68:11 72:19 82:8 84:2 121:4 136:19 138:21 140:20 141:1 162:12 172:5 174:6 232:2

reports 24:25
58:9 65:5
68:7 72:16
82:4 83:23
121:1 136:14
150:20
156:10 162:9
174:3 231:22

represent
38:14 108:23
163:9 184:10

representative 82:21
107:19 153:7
157:22
158:14
160:21
162:25
188:18 191:9
192:20
195:13
206:12
213:24
217:24 222:1
238:25

represented
185:16

representing
21:20
58:19
80:12
93:22
97:10 125:10
128:7 143:13
143:14
163:18 169:6
169:11 171:9
174:13
180:18 182:3
185:10 186:4
189:14
192:18
194:10 197:1
197:20
198:13 200:7
202:8
203:4 203:17
205:4
208:4 208:21
210:11 211:6
212:15 215:8
219:12
220:25
224:23
226:16 228:2

represents
94:16
99:15 114:24
181:24

reproduceable
101:21

request 11:16
28:21

requested
152:5

requests
107:25

require
11:7 35:13
37:1 50:19
52:5 54:13
56:15 86:8
86:9 88:24
98:9
106:13
117:14
140:12
181:15
195:22 198:4
218:7 223:17
228:16
228:20
229:14

required
11:17
28:24
36:18 37:7
44:22 45:2
46:20
48:15
48:21
51:13
51:18
51:22 53:9
53:19 90:4
92:14
92:19
97:18 107:22
111:15
130:22
181:17
190:20
201:19
202:18
205:24 221:9

requirement
46:16
52:25 54:3
55:10 74:2
74:9 77:20
89:14
91:25 92:5
190:12
191:20
194:22
197:15
200:17
202:14
206:25

requirements
51:2 53:24
59:25 60:8
64:6 64:25
69:23
75:13
76:21
76:23
91:14
91:18
91:20 92:6
93:6 93:8
93:12 100:24
103:19
117:11 123:4
139:5 139:12
141:12
141:14
141:19 142:5
142:21
142:23
142:25 143:1
147:8 147:15
148:1 163:21
164:4 164:25
168:4
168:7
169:2 174:24
175:16
176:11
176:15
176:21 177:1
177:7 178:10
178:17 179:1
179:5
179:7 182:11
187:13 190:4
190:8 190:21
191:3
192:2 195:23
196:4 196:11
197:4
201:9
207:7 207:16
207:19

207:21 208:8
211:14
214:10
214:17
215:19
215:21 218:8
218:14
218:21
219:21
219:22
222:11
222:18
223:22 227:7
237:21

requires
43:14
46:14
50:14
54:20
62:16
64:10
85:15 94:1
101:12
101:19
116:24 132:4
175:15
229:10

requiring
5:23 26:2
45:18 201:15

requisite
164:4

research
34:22
40:12
64:10
64:13
64:14
64:17
64:20
64:23 69:9
69:17 91:5
150:19
151:12
225:17

Researchers
151:16

researching
151:14

reserve 31:10
34:4

reserved
168:1 168:3

resident
198:18

residential
176:8
177:7 177:25
178:8 191:12
191:19
195:17 196:3
206:15
206:23 214:2
214:9
218:2 218:13
222:4 226:8

residual
53:13

resistance
81:14
81:21
82:11
234:4 237:19

resolve 236:2

resolved
147:1 235:22

resolving
36:23

Resources
17:11

respect
77:2 78:12
104:17
155:14
168:10 185:6
203:9 208:23
209:4

respectfully
154:17 155:9

respective
231:22

respectively
24:15 179:25

respond 6:8
26:13
31:15 127:22
186:5

responders
39:7 164:13

responding
158:15
201:21

response
62:17
62:19
62:24
63:18
65:15 141:17
143:23
145:10
158:12

responsibilities 166:15
177:12

responsibility 190:20
233:18
234:23

responsible
12:7 30:6
58:7 68:5
72:14
79:22 82:3
83:21 113:20
120:23
136:14 162:7
166:24 174:1
177:21 235:7

responsive
131:8

rest 170:8
234:18

restate 42:15
49:13 57:4
66:25 71:3
80:24
119:5
135:8 172:19
188:23
193:18
204:12
211:23 216:8
220:7 230:13
238:8

restaurants
157:11

Restore 163:9
163:18
170:17

restrict 54:2
142:13
229:25

restricting
33:11

restriction
115:14 181:1
187:8 227:24

restrictions
148:20
157:16
181:11
181:12
181:19
211:12 227:5

restrictive
138:24

restrictively
155:11

restroom
95:15 109:24
110:1

result
13:23
43:25
46:11 48:1
61:6
106:25 115:2
115:25
137:25
138:21
140:21 145:8
150:10 164:9
235:24

resultant
118:14

resulted
74:14 117:13
145:8 166:21
177:17 235:3

resulting
10:4 27:25
75:16
87:13 100:19
147:5

results
9:14 9:15
9:24 24:23
27:5 27:17
27:19
29:11
29:11 30:7
42:23 56:5
58:9 67:7
68:7 69:8
71:12
72:16 81:6
82:4 83:23
97:21 111:21
112:14
113:21
119:11 121:1
124:11
136:15 162:9
173:3
174:3
178:2 178:18
189:7 191:14
192:3
194:1 195:19
196:12 204:7
204:21
206:17 207:8
212:8
214:4 214:18
216:17 218:3
218:22
220:16
230:22
231:23
235:13
238:17

retail 145:18
157:10

retailers
146:14

retained
46:18 142:20

retardant
74:13 74:18

retightening
115:22

retired 20:20
20:24 21:11

retroactivity
221:18

return 5:7
9:2 119:23
119:25

returned
117:20
124:13
178:21 192:5
196:14
207:10
214:20
218:24

returning
118:19

revert 51:3
69:13 69:24

reverted
117:11

review 8:12
24:23 25:3
76:4 76:9
137:15
152:25
167:10
167:15
213:14
213:18
219:15

reviewed
52:22 62:1
62:11 63:5
65:8 79:15
79:21 121:19
153:10
166:17
177:14 192:6
196:15
214:21
218:25
222:14
234:25

reviewer
219:18

reviewers
56:14

reviewing
190:17 195:3

revise
87:18 117:3

revised 15:25
16:3 52:22
63:5 88:17

revision 7:24
24:14
29:25
30:21
30:24
38:18
42:16 43:7
48:24
49:14 50:2
50:4 51:10
52:17
56:22 57:6
58:3 67:24
68:21
68:23 69:3
69:4 69:11
69:16 70:6
70:10
70:23 71:4
72:9 76:11

76:12
76:25
81:24
83:17
84:16
84:19
85:10
86:12
86:21
87:14
87:15 88:9
113:12
114:16 117:3
117:10
117:18
118:24 119:6
122:11
122:15 123:9
124:7 124:16
135:9
136:7 137:20
138:23
154:23 162:3
167:12
167:18
167:21
168:12
173:22 178:6
191:15
195:24
206:21 214:5
218:9 231:17

revisions
30:3 30:5
58:6 58:6
62:3 68:2
68:4 72:13
72:13 76:6
82:2 82:2
83:20
83:20
87:12 101:20
113:15
113:19
117:13
120:22
136:11
136:13 162:6
162:6 166:20
173:25
173:25
177:14
177:16
231:20
231:21 236:4
236:14

revisit 110:6

revisited
48:5

Rhode 74:20

Richard
20:8 20:12
170:12

rights
11:14 28:16

ring 115:6

rise 62:25
198:19
198:20
199:21

risk 19:18
31:17
37:25 46:2
69:19
116:6 116:17
118:3
118:8
118:9 118:10
141:11
147:11
147:13
163:25 180:8
223:8 225:9

risks 141:6
156:6
156:8 156:11
156:13 164:1
165:25 166:2
166:7 180:9

risky 138:13

Ritz 21:19

road 110:7

Robert
16:21 16:22

Rodger 24:4
24:6 25:13
28:9

Rodgers 22:1

rogue 183:20

Ronald 136:23

room 5:10
6:14 8:10
10:12 11:3
11:3 14:23
26:19
28:18 63:1
83:7 83:15
84:6 85:17
91:21 94:1
94:18
99:12 100:19
100:21
101:17
101:18 102:4
108:23
144:18
198:25
198:25 199:2
203:6
206:5 226:19

rooms 175:14

route 6:15

routes 26:21

routine
201:12

rule 27:5

rules 7:12
7:13 8:7
82:23 160:23
163:1 239:2

run 199:9

running 128:2

rupture 31:9

S

safe 5:12
36:12
69:19 116:11
138:7 146:17
155:25 156:1
158:17 164:6
181:21
183:21
187:10
232:23
233:20
234:18

safeguarding
163:21

Safeguards
18:15

safehouse
74:20

safely 146:3

safer
116:18
118:16

164:12
safety 5:8
5:13 5:14
5:16 15:23
16:3 17:9
18:23 21:1
23:15
23:19
25:18
25:20 53:7
55:11
64:25
73:21
74:23 75:1
77:18
80:10
88:23 104:24
112:23 113:8
113:15
113:23 114:4
115:21
116:13 117:8
120:11
120:21
124:20
124:22
131:15
139:10
150:22 151:1
158:11 166:6
171:5 173:14
173:19
173:20 175:2
175:6
175:7
176:2 177:17
179:23 180:2
180:13
184:16
186:23
186:24
190:16
190:22
190:22 193:3
195:2 205:20
221:15
221:16
223:15 225:5
225:8
226:3
231:8 231:15
232:4 232:22
233:1
Sam 185:10
Samuel 22:1
satisfactory
32:10
satisfy
107:25
save 152:11
190:6 194:12
226:9
saving 180:13
saw 74:25
145:7
Sawyer 174:13
189:15
194:10 205:5
212:16
220:25
say-so 199:18
scaled 164:1
scary 61:19
scenario
186:13
scenarios
35:24
schedule
40:18
scheduled
184:22
scheme 100:24
Schenker
104:15
104:15
109:16
109:16
Schifellite
122:10
science
102:17
102:22
scientific
86:17 102:14
scope 33:25
125:17
138:25
169:14
169:16
178:17 192:2
196:11 207:7
214:17
218:21
scopes 166:15
177:12
234:23
Scott 79:10
90:19 107:12
Scranton
90:20
98:21
98:22
107:2 107:13
107:15
107:24
screen
13:17 14:8
14:9 14:13
14:15
14:18
14:21
14:21
14:22
29:12
42:20
42:24
51:14 60:2
73:16
86:13 172:24
173:1
173:5
173:6
189:2
189:4
189:8 189:10
193:22
193:24 194:3
194:4 204:17
204:19
204:23
204:24 212:2
212:4
212:9 212:11
216:12
216:14
216:18
216:19
220:12
220:14
220:18
220:19
230:17
230:19
230:23
230:24
238:12
238:14
238:18
238:19

screw 31:25
script 239:6
scroll 29:4 134:25 159:4 204:1
sealed 133:6
seals 133:6
search 229:11
seat 45:24
seated 10:12
seats 15:4 15:7 120:1
second 29:24 30:2 30:21 30:25 31:1 31:2 38:18 42:16 43:7 43:8 43:9 43:10 48:23 49:14 50:2 50:4 50:5 50:6 50:7 50:22 51:10 52:17 54:19 56:21 57:6 58:2 58:5 58:23 58:24 59:1 63:4 67:23 68:2 68:21 68:23 68:24 68:25 69:1 69:3 69:11 69:16 70:6 70:10 70:23 71:4 72:9 72:12 73:6 73:7 73:8 81:23 82:1 83:16 83:19 84:16 84:19 84:20 84:21 84:22 86:21 87:13 87:14 87:15 88:18 88:19 94:19 111:8 111:9 113:11 113:14 114:16 114:16 114:17 114:19 117:10 117:17 118:23 119:6 120:19 121:13 122:11 122:14 123:9 124:7 124:8 124:15 134:19 134:20 134:21 134:22 134:24 135:9 136:6 136:10 137:7 137:8 137:9 138:23 144:9 157:19 158:24 159:1 159:2 159:3 159:20 160:12 160:13 160:15 162:2 162:5 163:13 163:14 163:15 173:21 173:24 174:19 174:20 174:21 189:24 189:25 190:1 194:17 194:18 194:19 203:23 203:24 203:25 205:11 205:12 205:13 212:23 212:24 212:25 217:4 217:5 217:6 221:5 221:5 229:5 231:16 231:19 232:13 232:14 232:15 233:21 235:19 236:5 236:13 236:14
secondary 55:11 167:19
Secondly 186:16
seconds 29:9 32:7 39:6 42:22 44:25 49:19 57:10 67:6 71:11 81:5 111:20 112:13 119:10 135:5 135:14 159:9 159:17 173:2 189:5 193:25 204:6 204:20 212:6 216:15 220:15 230:20 238:15
Secretary 15:16 17:12 179:14 224:6
section 9:1 9:10 13:1 13:3 13:4 13:7 27:17 30:24 36:24 36:25 37:8 45:18 46:14 51:3 51:9 51:14 52:22 55:3 55:4 55:5

59:16
73:13
73:14
88:12 92:2
92:23
92:25
93:13
94:22
100:4 100:21
100:25 101:2
101:8
101:9 101:12
107:20
108:20
125:11 127:1
127:8 139:23
142:25 153:6
153:8 160:24
164:12
168:21
168:22 175:8
175:13
175:17
178:15
190:11
191:25
202:12 211:9
211:13 233:5
233:9 233:10
233:11
233:13 234:9
236:1
237:1
237:7 237:18

sectional
37:2

section-by
139:22

sections
9:5 13:1
41:17
92:17
92:19 177:22
211:15 233:9
233:14
233:22
233:25 234:3
234:8

sector 115:17

security 5:20
5:25 6:7
21:6 22:24
23:3 23:14
25:24 26:4
26:12

seeing
14:23
41:24
48:25
56:23 57:4
57:14
65:25
66:15
67:12
70:21
71:16
71:19
80:18 81:9
82:20 99:3
112:19
135:17
162:24
171:20
172:15
188:13
188:14
193:14
211:19 216:4
220:3
230:9
231:3
238:4 239:9

seeking
213:12
217:17

seeks 70:6
75:22
124:7
167:3
178:3 195:21
206:18
207:12 218:6
222:7

seems 54:21
60:18 61:14

seen 37:22
51:14 123:15
128:14 156:9

SEK 198:12
225:8

select 29:4

selecting
102:15

self 89:25

self-egress
165:4

self-evacuation
166:4

self-service 70:8

self-supporting
89:19 89:21

sell 146:12
147:13

semi-trailer
142:1

send 131:3

Senior 145:18

sensational
165:9

sentence
202:23

separated
175:20

separating
123:25

separation
176:14 191:3

Serafin 57:20
57:22
61:22
61:25
66:16 66:18

series 6:4
26:8 143:17

serious
61:8 170:24

serve 15:12
17:22 23:9
46:10
56:11
105:8 239:12

served
17:12 18:2
18:12
18:25
20:20
20:25 21:5
21:13
21:24
22:24 23:18

serves
15:16 16:24

17:10
17:20
17:24
18:22
19:11
19:16
20:12
21:17
21:21 22:2
22:8 22:15
23:7 23:13

service 15:10
16:12
16:12
16:14
16:17
16:21 17:4
17:6 17:15
17:16 18:6
18:8 18:17
19:6 19:24
20:1 20:3
20:14
35:16
41:14 46:3
136:3
136:9
145:3
145:4 150:21
152:2
152:6 158:14
165:17
181:22 182:6
190:12
190:14
190:17
194:23
194:25 195:3
195:8 198:23
211:10
219:17 227:5

serviced
118:18

services
20:10 66:1
174:24 179:6
179:22 187:6
190:5 190:15
207:20 213:8
213:10
213:16
213:19
221:20 222:9
227:8

servicing
116:7

serving
18:1 23:9
25:15 54:3
120:6 235:10

session
7:13 8:19
10:25
11:14
11:21
12:21 28:5
28:16
29:12
182:8
196:9
207:5 214:15
218:19
239:13

sessions 7:17
25:2 157:14

setting 32:17
32:20 177:7

setup 94:1

seven 86:18

several 19:25
91:1
105:16
109:22
110:11 117:7
128:10
144:21
164:14
233:24 237:4

severe 74:15

severity
62:12 65:11

share 15:1
16:1
122:20 126:5

shedding
74:19

Sheerin 22:13

she's 19:2

shielding
74:19

shifts 32:19

Shipbuilding
23:7

shock
138:19
140:21

shorten
113:24 186:4

shortly 15:5

showed 183:25

shown 42:23
175:22

shows 33:2
176:7

shut 35:9
116:16

shutoff 143:1
143:3

shutting 37:4

sides 94:14
98:8

sight 95:24

sign 8:6

Signaling
23:4

signed 8:11
82:18 162:22

significant
43:21 44:7
44:19 45:5
47:13 48:2
101:20 118:8
131:11 146:5

significantly
94:21 115:19
140:11
151:12

signs 11:2
12:22 12:23

silent 208:14
210:2

similar
115:11 131:3
213:3

similarly
101:1

simple 46:9

simply
10:24
61:10 74:2
147:13
202:22
223:18

Simpson 22:21

sincere
24:1 119:16
single
36:19
40:21
41:13
41:19
44:24
51:22 71:9
138:19
140:20 147:5
226:3
single-use
143:5
sir 39:23
40:2 56:25
95:9 137:2
137:11
172:17
177:11
187:25
193:16
195:12
211:21 216:6
220:5 230:11
sit 110:20
sites
146:22
147:12
149:16
sitting
140:25
155:18
227:10
situation 6:9
26:15 102:11
102:20
situations
115:3 180:5
six 85:9
85:22
86:18
94:18
96:19 98:5
98:10
98:12 102:21
106:2 109:25
110:2 117:18
146:13
178:21 192:5
196:14
207:10
214:20
218:24
six-inch
86:16
91:22 92:6
100:14
100:16
107:21
size 92:18
100:19
100:21
176:11
181:14 213:5
sizes 40:6
101:5
sizing 36:17
skin 118:11
slightly
88:16
small 45:19
smaller
149:16
smallest
44:24
smart 10:24
11:14 28:21
Smith 67:17
67:19
68:14 70:2
70:5 70:24
71:1 71:17
71:18 114:10
114:10
114:14
114:20
114:21
114:21
smoke 19:21
123:24
123:25
128:21
129:20
130:19
130:25
132:23 156:4
224:15
soft-shell
164:17
164:24 165:2
165:14
171:11
soft-sided
163:22 164:1
164:11
soft-wall
166:3
sole 9:25
27:6
solely 53:20
soliciting
124:9
solid 89:14
Solutions
99:22
99:24 168:20
somebody
102:20
110:16
155:20
184:21
somebody's
227:9
somehow
154:16
someone 130:4
153:18
Somerville
17:20
somewhat
131:8
somewhere
138:16
sorry 39:18
39:23 40:1
64:1 69:4
79:4 92:24
95:3 128:1
152:19 154:9
160:16
171:20 186:8
198:11 224:4
sort 56:6
131:22
sought 178:23
sound 6:3
13:17 26:7
71:25 72:6
102:14
sounds
59:22 61:19
source 6:9
26:14
sources

118:14
South 19:11
Southeast
84:14
84:25 95:5
102:3
Southwest
69:17 91:5
space 99:13
spaced 85:9
108:22
spacing 87:10
91:25
92:16
94:17 100:12
102:13
spans 51:15
speak 13:13
65:21
78:20 80:1
88:3
111:12
112:10
153:18 178:1
191:13
195:18
203:22
206:16 214:2
218:2 227:17
235:12
speaker 13:12
31:1 43:9
50:6 58:24
68:25 73:7
84:21 114:17
134:20
134:22 137:8
158:24
160:12
163:14
174:20
189:25
194:18
203:24
205:12
212:24 217:5
232:14
speakers 26:7
111:9 159:2
speaking
12:11
12:15
13:14
38:10
41:10 47:4
47:6 47:20
48:11 54:9
54:12
54:25 55:2
55:16
55:18
63:25 64:3
65:19 73:2
77:9 77:11
78:8 78:10
79:8 79:10
79:11
84:15
87:24
90:16
90:20
90:25
93:19
93:23 95:2
95:6 95:8
97:8 99:19
99:22
102:1 104:14
104:16 106:3
106:7 107:10
107:13
108:17
108:19 109:2
109:14
109:17 111:3
111:5 117:24
118:2 121:15
125:6 125:24
129:12
131:20
134:15
137:13
143:10
143:16
145:20 148:5
148:8
153:5
153:7 153:17
154:13
158:22
168:17
168:20
169:24 170:1
179:11
182:15 184:9
192:15
196:23
198:18 203:2
208:1 209:20
215:4
219:8
222:4 222:23
223:2
225:9 236:17
236:21
speaks 51:11
special
13:8 120:3
144:9 148:20
203:11
233:13
specific
14:12
37:16
85:12
86:10
89:24 90:1
101:9 103:19
121:16
141:12 143:1
163:21
183:13 237:7
237:18
specifically
9:9 36:13
48:19 130:23
179:23
211:13
specificity
164:20
specified
77:5 96:12
168:14
specimen
89:22
specimens
89:18
89:25
93:14 101:1
specs 127:4
spent
110:23
152:21
spill 62:21
spills 140:16
141:8 142:8
splitting
229:4
spoke 197:6

200:14
spread 62:3
62:18 63:7
63:16
63:19 175:24
sprinkled
176:10
205:25 206:3
206:4
sprinkler
19:10
19:17
38:14
38:24 39:5
41:9 44:13
44:23
44:24
47:14
48:11 50:1
54:12
62:24
199:1 221:10
222:10
223:15
224:18
225:23
226:17
226:18
227:22
228:24 229:1
229:20
sprinklered
181:10
198:24
199:21
222:19
223:25
224:16
227:20
sprinklers
19:17
60:25 61:1
62:17
62:19
63:18
65:14
65:15
65:23
65:23 210:24
221:12
221:17
221:19 225:6
225:25 226:9
226:11
227:18
square 182:22
183:4 183:5
SR 114:13
115:2
SR2 124:11
125:16
SR35 43:5
43:14 43:18
SRM 198:12
St 18:21
staff 6:8
6:15 6:16
6:18 26:13
26:21
26:22
28:18 164:13
stage 15:15
17:7 17:18
18:9 19:8
124:9
178:5
192:9 196:18
206:20
214:24 219:3
222:16
235:18
235:19
Stages
71:25 72:6
staggered
176:16
stairwells
44:12
stakeholders
38:1 179:3
191:17 196:1
207:17 214:7
218:11
222:13
stamp 40:11
stand 78:11
190:6
200:7 210:18
228:1
standalone
142:17
standard 27:8
29:16
29:17
29:22 30:3
30:8 30:13
34:19
34:20
36:25
37:10
37:21
40:10
40:13 52:9
53:14
54:13
54:20
57:17 57:18
57:25
58:14 59:6
67:15
71:22
71:23 72:5
73:19
79:14
79:21
79:23
81:11
81:12
81:20
82:10 83:4
83:5 83:13
84:4 89:18
90:7 90:12
91:19
95:20
97:13
98:18 99:7
101:3
101:5
102:6 102:19
102:19
104:19 108:9
110:4 110:10
112:5 112:22
112:24 113:8
113:16 114:4
120:10
120:20 123:3
124:8
132:4 135:20
143:21
149:21
155:10
173:13
200:22 231:6
standardizes
98:25
standards 7:1

7:2 7:9 8:24
9:4 9:7 9:23
10:1 10:2
10:2 13:8
15:12
15:16
15:19 16:2
16:10
16:18 17:4
17:15 18:6
18:17
19:24
23:24 24:8
24:13
24:22 25:7
25:10 27:3
27:7 27:10
27:22 28:2
28:4 30:12
36:16
37:15 42:9
58:12
68:12
72:19 76:2
82:8 84:2
102:5
102:9
114:2 119:21
120:25 121:4
127:6
132:7 136:19
143:20
143:22
144:17
155:12
161:12
162:12
164:10
164:22
165:15 167:8
171:5
174:6 178:16
184:8 186:22
192:1 196:10
198:6
207:6 214:16
218:20 232:3

Standby
159:20

standoff
91:22 96:12

standpipe
29:17
29:23 30:4
30:9 30:13
31:10 34:3
34:17 36:4
36:12 37:4
37:6 37:24
38:5 38:24
44:13
51:15 56:16

standpipes
29:22 30:1
34:5 34:13
34:16 37:3
37:5 39:2
45:15
45:17 47:14

start 7:9
31:15 32:9
32:9 39:15
40:7
132:22
132:23 199:9
199:25
237:24

started 17:22
40:5 120:1

starting 15:6
15:9 17:25

state 20:9
39:17 41:6
47:19
47:24 48:8
49:23
54:24
55:15
65:18
68:17 77:8
78:7 79:7
84:10
87:22 89:9
90:15
93:18 95:1
97:6 99:18
101:25
102:24 103:1
104:13
104:20 106:2
107:9 108:16
109:13 111:2
112:4 117:23
148:4
164:8 197:21
200:13 201:5
201:9 202:11

stated
43:19
55:19 127:16
157:18 179:4
180:23
198:21
207:18

statement
42:2 43:18
44:6 45:10
49:4 57:2
66:19 74:7
124:15 161:3
169:14
176:23 178:6
178:22 181:7
206:21
207:11
208:16

statements
12:1 12:2
27:25

states 76:3
76:18 92:2
100:25 101:2
140:19
146:11
146:13
164:16 167:9
188:3 211:14

station
138:12
138:22 147:6
150:21 152:6

stations
20:14 132:23
136:4
136:9 138:16
139:11 152:2
154:25 156:4
156:12

status
10:15 13:8

staying 89:10

stays 98:17

steel 18:11
91:22
96:13 100:14
100:16

Steiner 89:4

stellar 16:9

stenographer
12:21

step 46:9

Stepp 95:3 95:4 95:8

Steve 19:7 19:7 19:23 29:18 134:15 174:13 189:14 194:10 205:4 212:15 220:25

Steven 19:9 20:18 20:20

Stone 148:7 148:8

stop 143:4

stops 130:2 130:3 130:3 130:5

storage 18:13 19:14 145:6 180:21 185:20 185:22

store 145:21 146:4 177:2 225:18 225:18

stored 176:3 225:22 226:2

storefronts 170:21

stores 145:22 145:23 146:6 146:7 149:16 157:11

stories 199:9

storing 184:13 185:4

strategies 54:5

strength 115:23

strengthened 53:23

strict 42:9

strictly 48:15 77:4 80:21 168:13

strike 234:1

strikeouts 122:19

strobes 26:7

strongly 60:22 145:11 180:11

strongly-held 42:3

structure 126:16

structured 237:19

structures 150:24 151:2

struggling 145:4

stud 87:9

Studio 71:24 72:6

studs 91:22 92:7 92:14 96:14 100:15 100:16 107:21

studying 80:20

stuff 59:21 60:16 60:17 199:12

styles 94:7 94:13

subject 35:3 75:25 76:14 76:17 109:1 167:6 228:23

submission 8:14 11:19 24:19 29:1 76:5 167:11

submit 156:6

submittal 76:10

submitted 27:25 30:5 58:7 59:13 68:4 72:14 82:2 83:21 88:14 97:22 98:2 113:19 120:22 131:3 136:13 162:7 163:24 174:1 178:11 182:9 191:21 192:6 196:5 196:15 207:1 214:11 214:21 218:15 218:25 222:14 231:21 235:17 235:19

submitter 43:4 62:5 63:9 167:16 178:25 207:14 208:7

submitting 11:7

Subsection 76:13 178:4 178:23 195:23 206:19 207:13 218:7 222:11

subsequent 8:3 235:23

subsequently 186:23

substances 142:10

substantial 16:15 50:10 147:13 185:24

substantiation 62:6 65:4 76:18 137:19 137:21 169:13

success 14:25

successful 11:8 13:24 159:24

187:15
successfully
186:11
186:12
suggest
143:19 145:1
suggested
15:2
suggests
156:10
165:24
summary 92:23
92:24 100:25
101:19
123:19
super 157:8
157:14
158:13
supervised
223:17
223:18
224:24 228:6
228:23
supplemental
87:17
supplied
51:19 53:9
53:12 53:16
supplies 18:3
36:9 37:24
51:8 51:18
51:24 55:19
supply 31:7
35:5 36:2
37:5 37:13
38:25 39:8
50:14
50:15 51:6
52:3 52:9
53:3 53:7
53:21
53:24
55:24 55:25
support 12:11
14:19
30:20
38:10 41:6
41:20
42:12
42:18 43:3
47:23
49:16
52:16
54:22 55:6
55:12 56:6
56:18 57:8
57:11 59:5
67:3 67:7
71:6 71:12
73:11 78:2
80:3 80:14
81:2 84:16
90:22 91:9
95:8 99:19
101:22 102:1
107:4 110:20
112:6 112:10
112:15
117:24 119:8
119:11
121:15
121:20 125:7
125:11
125:18
125:20 128:8
129:8
130:8 130:13
131:15 135:2
135:10
137:13 139:3
139:20
143:10
147:23 148:5
153:11
156:20
157:12
157:16
157:17
157:24 159:7
159:14
163:18 169:8
171:10
171:15
172:23 173:4
179:11
179:15
181:25 182:4
182:12 185:8
187:11
187:16 189:1
189:7 192:15
193:21 194:2
196:23
197:22
199:13 200:8
202:4
204:3
204:8 204:16
204:22 206:5
208:1 209:15
212:1
212:8 213:19
215:5 216:11
216:17
217:19 219:9
220:11
220:17
221:21
222:24 224:2
224:12
224:23 225:6
228:2 230:16
230:22
232:19
234:19
236:18
236:21
238:11
238:17
239:17
supported
131:2 157:21
supporter
183:1
supporters
12:23 153:19
supporting
36:12 40:1
86:20 90:1
94:7 94:8
94:10 96:1
96:3 96:17
150:17
185:15 192:8
196:17
214:23 219:2
222:15
supports
179:20
179:24
180:11
185:25
supposed 86:1
sure 60:17
66:7 98:17
124:1
126:3
130:6
132:1
132:6 132:16
133:5
133:6 133:24
134:9

158:4
179:9
200:3 201:19
203:10
234:22

surface 96:17

surprised
98:21 103:8

surrounded
85:5

surrounding
95:18

sustainable
156:23

Suzanne 15:17

Swiecicki
114:11
114:23

switch 126:11

switches
132:22 143:3

system 5:25
6:2 6:5
19:17 26:4
26:6 26:10
31:8 36:22
37:18
41:18
44:23
45:24
51:15
51:20 52:4
70:8 81:13
120:12
120:21
123:20
123:23
123:25
124:23
125:15
125:18 126:7
126:8 126:10
126:14
126:15
126:17
127:12
128:22
129:14
129:18
130:19
130:25
131:15 132:1
132:20 133:9
139:16 141:4
142:15 143:3
201:1 221:10
222:10
223:17
223:20 227:1
227:22
228:20
228:23
228:24 229:1
229:20

systems 17:25
18:14
19:21
20:13
22:11
22:19 23:4
23:4 29:18
29:23 30:4
30:9 30:14
32:17 34:3
34:18 36:4
36:13
36:20 37:1
37:6 38:6
38:24
38:24 39:5
39:8 41:16
44:13
46:17
47:12
47:15
47:16
50:15
53:21
54:18
56:14
56:16
69:20
81:20
82:11
90:19
94:16 107:13
123:1 124:20
124:25 125:1
127:2
127:9 128:14
128:15 130:8
132:5
132:8 132:12
132:16
133:17
133:19
133:20 134:7
138:3 140:10
140:18
140:23
141:16
142:19 180:7
180:10
203:17
208:13 211:6
223:15
225:23

T

tab 30:7
58:10 68:8
72:17 82:5
83:24 113:21
113:22 121:2
136:16
162:10 174:4
231:24

Tabar 72:2
72:22
75:19
75:22 77:6
78:23
78:25
80:18 80:20

table 11:16
24:20
28:23 60:7

tables
59:10
60:11
60:19 61:5
61:10

tactics 35:11
35:19 54:5

tails 105:20

taking 197:25

talk 16:11
84:25
105:8 145:13
152:13
152:19
154:13
154:14 158:3
169:11
182:25 193:6
193:6 210:12
210:24
215:14

talked 146:23

talking
80:7 155:23

157:20 158:4
158:6
158:7 158:7

tall 36:4
50:11

tampered
32:21 45:23

tank 18:11
18:13
18:14 141:24
141:25

tanks 19:15
31:11 151:7

targets 33:23

task 34:22
38:3 87:4
87:7 97:21
97:21 98:1
127:16 144:1
144:5 171:16
179:2 182:16
191:16
195:25
207:16 214:6
218:10
222:12

TC 139:15
152:5 152:7

tech 10:25
178:15
191:25 196:9
200:7
207:5 214:15
218:19 228:1
239:13

technical 5:2
5:6 6:22
6:23 7:3
7:18 8:1
8:16 9:6
9:16 9:18
10:4 10:6
10:21 12:1
12:7 13:2
14:14
14:24 15:4
15:9 16:13
16:24
17:10
17:24 18:2
18:12 19:1
19:12
19:16 20:7
20:12
20:21 21:1
21:5 21:13
21:21 22:3
22:8 22:18
23:1 23:8
23:13
23:19 24:5
26:22
26:24 27:9
27:14
27:16
27:20 28:1
29:21 30:1
34:12
34:16
34:24
36:10
36:11
41:11
45:15
45:17
52:22
54:16
57:24 58:4
58:8 61:23
62:1 66:20
67:21
67:25 68:5
69:5 69:15
70:3 70:14
72:4 72:11
73:21
75:20
75:24 76:7
77:1 77:2
77:25 78:1
79:15
79:22
80:13
81:19
81:25
83:12
83:18
86:25
90:24
91:10 92:1
93:7 98:5
113:3
113:7 113:13
116:21
117:17
120:17 124:5
125:16
131:12 136:3
136:8
144:1
144:5 144:14
144:21
144:23
152:25
166:17
166:23 167:5
167:13 168:9
168:10 169:8
170:3
170:5 176:20
176:22
176:23
177:21
177:25
180:23 182:8
188:17 190:9
191:8 191:12
195:13
195:17
206:11
206:15
213:24 214:1
217:24 218:1
222:3
222:6 234:25
235:6 235:10
235:21
235:24 236:6
236:24
239:16
239:18

technically
93:13

technicians
46:3 56:13

technologies
16:4

tee 203:6

Television
71:24 72:4
72:6 75:21

temperature
62:25
69:23 116:4

temperatures
116:5

temporary
140:16 142:7

ten 157:6
170:23

tenth 198:19

198:22

tenure 19:3
22:20
22:23
22:24 23:10

tenuring
19:20 21:16

term 126:1
128:1
150:7
228:5 228:19

terminate
8:20

Terminology
129:15

terms 89:23
121:20
141:14
151:19 233:1

terrorism
33:24

Terry 55:17
125:23

Tesla
156:19
158:10

tesla.com
158:11

Tesla's
156:21

test 11:9
11:19 29:1
32:15
32:17
40:13
40:16
40:23 60:9
73:19 74:9
75:14
81:12 83:6
85:17 87:3
88:2 89:18
89:21
89:25 90:5
90:24 93:4
93:25 94:1
94:4 94:17
94:20
96:25
97:12
97:18
98:20
98:25 100:16
100:20
100:25
101:21
103:11
103:12
103:13
103:20
104:23
104:23
104:25
105:22
106:16
107:24 108:2
108:5
108:6 108:12
108:13
108:13
108:23
108:25 109:5
109:7
109:8 109:19
109:21 110:7
110:14
110:14
110:17 124:2
124:23 125:2
126:23
128:16
130:20
130:23
131:14 132:2
132:5 132:13
132:16
132:18
132:21
132:22 133:9
133:10
133:13
133:17 134:1
182:20
232:20
232:23 233:2
233:17 234:4
234:13
234:15
234:17 237:6
237:10
237:10
237:24

tested
32:12
85:16 89:8
89:12 97:4
98:23
100:1
101:3 105:17
107:16 108:1
109:18
123:12
125:15
126:22 127:2
127:10
128:15 132:2
132:5 132:17
132:21
133:10
133:21
182:21

testifying
103:9

testimony
106:11 190:7

testing 32:18
34:9 34:21
36:12
37:22
40:22 42:6
42:11
45:23
62:20
62:23 69:8
69:12
69:16
75:16 89:3
89:6 91:2
91:4 91:12
91:13
92:10 93:1
93:2 93:4
93:9 97:1
97:17 104:21
105:12
105:15
105:19
106:17 107:1
108:21 109:7
120:12
120:18
120:21 123:4
123:10
123:20
125:17
127:12
127:12
128:19
128:23 129:7
132:25
171:15 177:5

tests 81:19

81:20
82:10
83:12
83:13 84:4
91:7 91:7
98:24 107:18
232:25
233:13
233:19 234:5

Texas
143:15
152:18

text 14:10
14:11
14:13
42:20 45:7
51:9 51:10
63:6 73:12
100:15
117:12
117:14
122:21
172:24
172:25 173:5
173:6 174:25
189:2
189:3
189:8
189:9 190:10
193:22
193:23 194:3
194:4 204:17
204:18
204:23
204:24 212:2
212:3
212:9 212:10
216:12
216:13
216:18
216:19
220:12
220:13
220:18
220:19
230:17
230:18
230:23
230:24
238:12
238:13
238:18
238:19

textile
164:25

thank 14:25
17:3 17:14
18:5 18:16
19:4 19:5
19:23 20:3
23:24
23:25 24:7
25:13
29:20
30:15
30:23
34:11
34:14 38:7
38:12
39:10
39:11 40:3
41:5 41:22
42:14
42:25 43:2
43:6 45:13
45:16 47:1
47:17
47:18 48:7
48:22
49:11
49:12 49:20
49:25 50:3
50:9 52:18
52:21 54:7
54:23 55:1
55:14
56:19
56:20 57:3
57:10
57:14
57:22
58:16
58:21
58:25 59:3
61:20
61:21
61:25
63:22
65:17
66:12
66:13
66:24
67:19
68:14
68:22 70:1
70:5 70:19
71:1 71:2
71:16
71:18 72:2
72:22 73:4
73:10
75:17
75:18
75:22 77:6
78:5 78:6
78:16
78:17
78:22
79:24
80:14
80:15
80:23 81:17
82:13
83:10 84:7
84:12
84:18
84:22
84:24
86:20
86:21
86:23 87:1
87:18
87:20
90:13
90:14
93:15
93:17
93:21
94:24
94:25 97:4
97:5 99:17
101:24 102:2
102:24
102:25 104:9
104:10
105:25 106:1
107:7
107:8 108:14
108:15
108:18
109:11
109:12
110:25 111:1
112:3
112:6
112:8 112:17
112:19 113:5
114:7 114:14
114:18
116:19
116:20
116:23
117:21
118:20

118:22 119:3
119:4 119:13
120:2 120:15
121:6 121:12
124:2
124:3
124:6
125:4
125:9 125:21
128:4
128:6
129:9
130:9 130:10
131:17
134:10
134:12
134:14
134:17
134:23
135:16
135:23 136:1
136:23 137:2
137:11
139:23
139:24 140:1
143:7 143:12
145:13
145:15 148:2
148:3
148:7 150:13
150:14
150:16
152:14
152:15 153:1
153:2
153:4 153:13
153:14 154:6
154:7 156:14
156:16
156:18
158:17
158:19
158:21
159:21 160:6
160:8
160:9 160:18
161:3 161:14
161:15
161:16
161:17
161:23
162:14
163:11
163:17
166:10
166:14
168:15 169:4
169:23
171:16
172:11
172:18
173:10
173:17 174:9
174:17
174:23 177:8
177:11
177:23 179:8
180:14
180:15
182:12 184:4
186:9 187:18
187:25 188:9
188:21
188:22 189:6
189:10
189:20
189:21
189:22 191:5
191:10
192:12
193:10
193:16 194:9
194:21 195:8
195:10
195:12
195:15 198:9
200:4
200:6
202:5 202:25
203:14
203:19 205:9
205:15 206:5
206:13
207:21
207:23 209:1
209:2 209:16
209:17 210:7
211:3 211:21
212:7 212:19
212:21
213:20
213:21
213:25 215:2
216:6 216:16
217:2
217:8 217:21
217:25 219:6
220:5
221:3
221:7
222:2 222:21
226:13 230:3
230:6 230:11
230:21
231:12 232:5
232:11
232:17
234:19
234:20 235:8
235:14
236:14
236:15
237:25 238:6
238:16
238:20
239:10
239:16

thanking 16:8

thanks
23:21 25:8
64:2
119:16 120:3
161:8
184:6 224:20
225:6

that'll
210:21

themselves
123:2

theoretically
51:6

therapy
167:22
167:25 168:5

therefore
61:15
93:13 97:1
142:19
160:23 198:8
202:16
233:12 239:2

there's 30:23
41:12 43:6
48:17
56:17
60:15
61:15 64:7
66:9 73:4
86:19
97:16
97:23
98:24 103:15
105:21
121:25 123:8
130:15

133:22 134:4 137:6 149:24 150:1 150:2 158:25 160:10 169:13 170:17 170:20 171:23 172:7 184:24 187:2 187:7 188:13 193:3 197:15 200:20 202:17 203:21 211:13 212:21 215:23 219:17 227:11 228:7 229:23 229:24 237:18

thermal 89:14 89:15 90:9

they'll 110:15

they're 35:24 41:1 56:5 59:10 60:11 103:16 132:6 140:19 148:23 213:10 223:7 227:10 228:22

they've 41:3 106:22 183:12

Thirty 124:12

Thirty-three 144:15

Thomas 20:23 20:25 153:5

Thornton 23:6

thousand 145:22

thousands 138:15 150:12

thread 48:16

threads 44:4 46:15 46:17 46:20

three-alarm 145:7

threshold 55:20

thresholds 166:6

throughout 6:3 26:8 65:25 122:15 123:13 183:14

throwing 102:18

THURSDAY 5:3

TIA 79:20 103:25 104:1 104:2 137:16

tie 10:16

tied 33:7

Tierney 23:12

tightly 45:22 183:9

Tim 104:15 109:16

timeframe 110:22

timely 15:6

timer 13:17

tire 138:11 148:23

TLC 22:14 168:19

today 9:24 11:21 16:19 19:2 20:2 20:8 24:12 25:1 27:5 28:12 85:1 97:25 98:22 107:6 109:11 119:17 146:6 147:3 151:2 152:12 155:7 155:23 156:12 158:2 161:9 165:23 167:1 180:24 180:25 181:8 183:23 186:12 210:7 227:24 239:11

today's 7:10 7:13 7:16 11:14 25:2 28:5 28:16

toilet 85:1 85:15 86:6 94:6 94:12 95:9 95:10 95:18 95:22 96:18 96:22 97:2 97:3

Tom 47:5 84:12 84:24 102:2 198:12 225:8

tool 74:3 75:7 202:3 229:11

tools 145:9

top 100:12 183:8

topic 184:11

total 14:19 43:16 131:7 146:2

totally 105:4 129:25

touch 42:16 42:20 49:14 49:17 49:18 57:7 57:8 57:9 67:2 67:3 67:4 71:5 71:6 71:7 81:1 81:1 81:3 112:9 112:10 112:11 119:6 119:7

119:8
135:3 135:11
135:12 159:7
159:8 159:15
159:16
172:22
172:24 173:1
188:25 189:2
189:4 193:20
193:22
193:24 204:3
204:4 204:15
204:17
204:19
211:25 212:2
212:4 216:10
216:12
216:14
220:10
220:12
220:14 228:3
229:5 230:15
230:17
230:19
238:10
238:12
238:14

tough 151:13

tractor 142:1

tractors
115:12

trades 15:22

traditionally
151:9

train 185:2

trained 6:7
26:12
31:15
31:17 33:17

training
22:21 128:19

TRANSCRIPTION
5:1

transfer
138:3
140:7 140:10
140:13
140:18
140:23 141:4
141:16 142:9
142:15
142:19 143:2

transition
156:22

transportation 146:8
146:18

trash
174:24 175:1
175:3 175:14
176:6 176:25
178:16 179:1
179:5 179:22
180:3 180:19
184:13
184:22 185:4
186:5
190:4 190:14
190:19 192:2
192:18
195:23
196:11 197:1
200:14 201:6
201:10
201:18 202:8
206:4
207:7 207:15
207:19 208:4
211:10
211:10
213:16
214:17 215:8
218:8 218:21
219:12
219:17
221:10
221:20 222:8
223:3 224:19
225:21 226:1
226:16

treated
147:12

treatments
74:14 74:18

tree 74:14
74:18

trigger 47:24
49:6

trim 31:21

trip 32:1
32:4

trouble 46:11
46:24

truck 117:1
117:6 117:9

trucks 112:24
113:7
113:9 113:16
113:23 114:4
116:22
117:16

true 60:25
132:14
152:10 223:9

truly 170:3

trust 152:24

try 56:3
106:10 203:6
234:15

trying
31:17
109:3
109:5
109:6 109:10
122:20
123:19
152:22
202:22 226:9
234:1

Tunnel 89:4

turn 24:3
119:14 161:6
161:12

TV 75:6 78:4

Twenty-one
178:19 192:4
196:13

Twenty-two
207:9 214:19
218:23

two-thirds
111:14

type 6:24
42:19
48:21
62:13
62:17
64:20 92:8
112:25 113:9
113:17 122:1
126:17 154:4
183:12

types 64:11
64:16
95:10 113:24
114:5

145:6
147:1 165:22
172:5 184:25

typical 91:15
98:7 99:15
124:25
223:14

typically
9:15 27:19
89:5 89:17
96:5 138:7
149:3 223:19
228:25

typos 92:13
105:21

Tyree
174:12
174:12
174:23
179:18 182:3
182:3 189:14
189:14
189:19
189:21 190:3
194:9 194:10
194:21 205:4
205:4 205:15
208:21
208:21
208:25 209:2
212:15
212:15
212:20 213:2
216:24
216:24 217:8
220:24
220:24 221:7

U

UL 33:9
34:8 39:13
39:24 40:4
40:11
40:11
40:12
40:13
76:13 155:24
233:15 234:5
234:10 237:6
237:21

ultimately
34:24

unacceptable
181:25

unanimously
55:5 63:3
63:21 168:23

unclassified
148:19

unclear 91:14
92:12
92:22 93:6
100:5 100:15
101:16

uncomfortable
79:13 79:20

uncommon
203:11

uncontrolled
118:6

undeniably
45:5

understand
60:18
76:19
77:13
96:22
105:4 109:18
110:22
141:14
219:14

understanding
141:19

understood
49:7

undertaken
35:17 69:9

undue 45:7
48:1

unenforceable
139:5

Unfortunately
166:25

UNIDENTIFIED
31:1 43:9
50:6 58:24
68:25 73:7
84:21 114:17
134:20
134:22 137:8
158:24
160:12
163:14
174:20
189:25
194:18
203:24
205:12
212:24 217:5
232:14

unintended
45:11

unique 64:9

unit 175:20
176:14

United 17:9
146:11
164:16

units
140:11 145:6
171:11
175:20

unknown 70:11

unless
44:22 51:7
106:14 206:4

Unlike 122:3

unlikely 5:10

unlisted
48:16

unnecessarily
77:17

unnecessary
52:4 55:12
139:4 147:11
147:25 150:9

unplugged
150:3

unreasonable
52:4 54:21
239:10

unregulated
155:9

unrelated
76:14 167:21

un-sprinklered
198:19
198:20

unsubstantiated 139:4
150:10

update 152:6

updated 15:25
16:3

updates 76:13
upheld 222:15
upholstered
81:22
82:12
187:5 227:14
Upholstery
81:14
upon 8:23 9:6
10:3 11:16
24:12
24:17 27:9
38:25
63:14
69:25
80:22 146:19
191:13
195:18 214:3
upper 39:3
39:5
Upson 78:10
78:10
upstream 31:6
urge 41:20
55:12 78:2
78:3 80:14
94:22 110:19
145:11
150:12
153:12
156:14 202:4
209:15 225:6
234:19
urgently
129:17
usable 53:12
usage 150:6
useful
75:14 123:13
user 92:10
95:19
users
114:25
141:14
usually 176:6
Utility 20:16
21:23
utilize 10:11
35:12
utilized
96:23 115:11

V

vacation
227:11
vacuum 165:8
valet
174:24 175:1
176:24
178:16 179:1
179:5 179:22
180:19 186:5
190:4 190:14
190:19 192:1
192:18
195:23
196:10 197:1
198:23
199:10
199:11
200:14 201:6
201:10 202:8
207:6 207:15
207:19 208:4
211:10
213:16
214:16 215:8
218:8 218:20
219:12
219:17
221:10
221:20 222:8
223:2 224:19
226:16
valid
105:11
105:12
validate
170:7 177:6
value 37:16
48:4 51:24
52:6 116:13
valve 31:5
31:5 31:12
31:14
31:20 32:3
32:5 32:7
32:8 32:10
32:22
32:23
32:25
32:25 33:4
33:4 33:8
33:12
33:14
33:16
33:18
33:19 34:2
34:9 35:8
35:9 35:15
35:23
37:12
41:18
44:16
45:22
45:24
46:11
51:21 115:22
116:2
valves
30:22
31:16
31:19
31:20
32:24 33:2
33:3 33:11
33:15
34:17
34:21
34:23 35:2
35:14
35:21 36:7
36:18
36:22 37:2
37:9 37:20
38:2 38:5
38:21
38:22 39:4
39:15 40:8
40:14
40:19
40:23
40:25 41:2
41:2 41:12
41:17 42:5
43:14
44:15
44:17 45:2
47:9 48:14
48:17
70:11 70:16
vaporizes
116:3
Vapors 22:4
variables
35:4
variably
35:22

variations
37:20
variety 55:11
193:7
various
125:13 145:6
164:21
vast 146:20
154:25
Vegas 5:7
vegetation
73:15 74:5
vehicle
69:6
115:13
115:14
118:17 138:3
138:10
138:12
140:23 141:6
141:24 143:6
146:18 149:1
149:5
149:6
149:9 150:20
150:23
150:24
153:21 154:2
156:6 156:11
vehicles
115:10
115:15
116:16
141:11
142:24
147:20 151:4
151:6
151:9 153:20
154:5
156:8 156:24
157:1 157:3
vehicle's
138:10
Vehicles
151:1 151:2
vendors 171:3
185:16
ventilation
164:25
verbiage
33:10 132:15
223:13
verbiages
134:8
verified
42:10
verify 11:8
29:3
123:21
125:12
version
51:4 88:19
versus
36:19 53:4
213:16
219:15
vertical
51:15 100:12
101:13
vessels
169:17
Victaulic
210:10
224:22
Victor
55:17
55:17 125:23
125:23
131:19
131:19
view 7:19
100:11
views 13:4
vigorously
61:11
Vinyl 88:1
103:5
violation
175:7
Virginia 22:2
23:7
145:25
200:13
virtual
186:15
virtually
144:22 164:8
visibility
185:2
visible 6:3
14:22 26:7
33:17
visit 7:20
visual
46:10
46:23 49:10
voice 20:5
26:9
voiced 117:8
volunteer
110:20
volunteers
15:24 16:1
vote 9:24
10:15
10:16
11:20
13:21
13:21
13:23
14:18 27:5
29:2 29:6
29:8 42:14
42:16
42:17
42:18
42:19
42:21
42:23
49:12
49:14
49:16
49:17
49:18 57:4
57:7 57:7
57:8 57:9
66:24 67:2
67:2 67:3
67:4 67:5
67:7 70:25
71:2 71:5
71:5 71:6
71:7 71:8
71:9 71:12
78:15
80:23 81:1
81:2 81:3
81:4 81:6
94:23 105:24
110:19
111:10
111:13
111:14
111:17
111:18 112:9
112:10
112:11

112:12
112:14 119:4
119:6
119:9 119:11
127:25
134:24 135:1
135:2
135:3
135:4
135:4
135:8 135:10
135:11
135:13 139:2
139:19 148:2
150:12
152:25
153:12
156:15 159:4
159:6
159:8
159:9 159:12
159:14
159:15
159:17
160:15
160:16
169:20 170:9
172:18
172:22
172:22
172:23
172:25 173:1
173:4 180:25
188:22
188:25
188:25 189:1
189:3
189:4
189:7 193:17
193:20
193:20
193:21
193:23
193:24 194:2
202:24
203:22 204:1
204:2
204:3
204:4
204:5
204:8 204:11
204:12
204:15
204:15
204:16
204:18
204:19
204:22 208:6
208:18
211:22
211:25
211:25 212:1
212:3
212:5
212:8 215:24
216:7 216:10
216:10
216:11
216:13
216:14
216:17
219:23 220:6
220:10
220:10
220:11
220:13
220:14
220:17
226:13
230:12
230:15
230:15
230:16
230:18
230:19
230:22
236:25 238:7
238:10
238:10
238:11
238:13
238:14
238:17

voted 24:12
55:5 63:3
63:20
94:21 122:11
124:12
124:13
124:13
144:15
153:11
168:23
178:19
178:20 192:4
192:5 196:13
196:14 199:5
207:9 207:10
214:19
214:20
215:11
218:23
218:24

voters 124:12
178:19 192:4
196:13 207:9
214:19
218:23

votes 9:18
10:4 11:7
13:6 14:19
26:24
27:25
87:17 117:19
117:19 173:4
173:5
189:7
212:8 212:10

voting 9:19
9:22 10:6
10:7 10:10
10:11
10:13
10:19
10:20
10:23
10:25 11:6
11:13
11:15 27:2
28:13
28:15
28:17
28:20
28:22 29:7
29:8 29:9
29:10
29:11
29:14 42:1
42:22
42:23 49:2
49:19
57:10 67:5
71:10 81:4
105:23
111:19
112:13 119:7
119:9 119:10
135:6 135:13
135:15
144:15
154:15
159:10
159:18
170:18 173:2
173:3
189:5
189:6 193:25

194:1
204:5
204:7 204:20
204:21 212:5
212:7 216:15
216:16
220:15
220:16
230:20
230:21
238:15
238:16

vu 200:12

W

Wagner
68:19
68:20 69:2
69:3 70:1
118:1 118:2

wait 77:16
92:24

waiting 103:3
153:18 200:3
203:22

wall 83:6
83:14 84:5
87:10 94:8
94:10
94:18 96:1
96:3 96:3
96:13
96:17
96:20 98:6
98:10
98:11
98:12 99:6
99:8 99:14
101:16
102:13
106:21
108:23
109:25 110:2
110:3 126:18
133:1

walls 85:19
91:22 94:2
99:12

wall-to-floor
109:7

Warehousing
19:14

warning
20:5 75:17

warrant 66:21

warranted
6:13 26:18

washers 86:10
92:18

Washroom
93:22

washrooms
94:6

wasn't 127:21

water 31:6
31:10 32:5
33:21 34:4
35:5 35:9
36:2 36:9
37:5 37:13
37:24
38:25 39:3
39:8 43:21
43:21 44:7
44:19
44:21
44:22 45:4
45:5 46:7
47:10 47:12
47:25 48:2
48:17 49:6
50:14 51:8
51:18 53:2
53:23
53:24
55:19
55:25
99:22
99:24 103:15
139:16
224:24

Wawa 145:19
147:16

Wawa's 145:21

Wayne 18:8
18:8 18:10
18:16

ways 156:1

weak 37:23

wear 115:20
115:25

website 7:4
7:14 88:12
121:20

we'd 19:4
221:21

week 145:7
153:9 157:14
184:23
227:10

weekly 176:19

weighed 13:9

weight 116:10

weighted
127:25

weird 59:23
60:18

welcome 5:5
15:1 15:8
17:6 24:10

we'll 63:22
71:19 117:21
125:5 147:21
228:19

well-being
180:2

well-defined
91:11

well-done
199:17

Wellness
163:9 163:18

Wentworth
55:2

we're 16:11
41:13 80:7
97:18 99:3
104:22
104:23
104:24 105:2
105:6 105:13
109:5
109:9 123:10
123:19 131:6
131:10 155:5
158:7
185:4 185:15
192:24
199:16
202:10
204:11 208:9
208:14 210:1
210:14
213:12

215:15
215:18
215:20 217:8
217:17 223:7
225:25
226:10
226:10
226:25 227:1
227:4
227:4
229:3
229:4 234:1

we've 40:15
65:25
103:7 109:18
134:2 184:12

whatever
46:13

whatsoever
56:2 56:6
56:17 86:19

where'd
102:21

WHEREUPON
119:24
239:20

whether 12:14
14:3 38:10
47:3 47:20
48:8 53:2
54:9 54:24
55:15
63:24
65:18 77:9
78:8 79:8
87:23
90:16
93:19 95:1
97:7 99:19
102:1 104:13
106:3 107:10
108:16
109:13 111:2
117:24 125:6
128:24
143:10 148:5
168:17
179:10
192:14
196:23
207:25 215:4
219:8 222:19
222:23
236:17

whole 73:17
110:21
184:10
224:10
233:15

wholly
50:20
51:16
53:17
53:25 55:8

who's
177:20 227:8

wide 35:3
35:21
179:2 191:17
196:1 207:17
214:7 218:11
222:13

width 101:2
101:4
181:4 181:17
187:4 227:15

William
161:21

willing
228:22

Willse 231:10
231:12 232:5
234:20
234:22 238:4
238:6

windows
21:7 23:16
130:19
130:21
130:24 134:4

winner 17:5
17:6 20:18

wiring 150:7

wish 42:18
42:19
49:16
49:17 57:8
57:9 67:3
67:4 71:6
71:7 78:20
81:2 81:3
135:2
135:3 135:10
135:11 159:8
159:14
159:15
172:23
172:24 189:1
189:2 193:21
193:22 204:2
204:4 204:16
204:17 212:1
212:2 216:11
216:12
220:11
220:12
230:16
230:17
238:11
238:12

wishing 80:1

withdraw
139:21 160:7
160:11
160:14

withstand
48:21

witnessed
91:6

Wittasek
235:7
235:8 235:9

Wolin 19:7
19:9

wonderful
65:24

wood 60:3
60:6 60:8
60:10 63:6

wording
228:14

work 38:3
41:3 64:16
64:17
64:22 87:7
106:25 108:7
152:24
157:23 169:3
191:16
195:25
210:20 214:6
218:10 222:5

worked
64:14 106:23

workers 115:3

working 28:14
29:3 36:3
48:14 107:23

108:4
132:3
139:7
144:2 152:22
154:10
182:17

works 154:20

world 33:23
184:11 226:8

worldwide
171:12

worse 199:22

Worthington
20:19

worthy 16:19

wrap 239:5

write
110:21
147:25

writing 138:1

written 79:16
105:21
121:24

wrong 39:9
128:20
172:10

www.nfpa.org 72:18
174:5

www.nfpa.org/14next
30:10

www.nfpa.org/2023techsession 7:21
11:1 28:10

www.nfpa.org/260next
82:7

www.nfpa.org/286next
84:1

www.nfpa.org/30Anext
136:18

www.nfpa.org/45next
58:11

www.nfpa.org/4next
121:3

www.nfpa.org/5000next
232:1

www.nfpa.org/505next
114:1

www.nfpa.org/58next
68:10

www.nfpa.org/99next
162:11

www.nfpa.org/regs 7:5
7:15

Y

year's
15:13 24:10

yesterday
130:1 138:17
150:18

yet 11:5
28:16 131:10
153:23
225:16

York 40:18
145:7 153:24
155:16
199:23
199:25

you'll
119:7
119:8 121:24

yourself 5:10
7:7 12:16

you've
97:17 98:5
102:5 110:11
156:1
186:9
187:1 197:17
209:24 210:6
219:23

Z

Zern 99:22
99:24

zero 117:19
171:13

zone 50:17
50:17
50:23 51:6
51:15
51:23 52:2
53:3 54:21
55:22
55:23 56:9
116:12
148:24

zones 50:20
51:13
52:13
52:24 53:9
53:17
53:25
54:14
55:20
55:25 56:5
56:7 56:11
123:25

zoning 36:4

Zurich 18:11