

TÜRKİYE FIRE AND LIFE SAFETY ANNUAL CONFERENCE 2023 WITH THE SUPPORT OF NFPA

DECEMBER 7, 2023 – TÜRKİYE

CONFERENCE SUMMARY

NFPA (National Fire Protection Association) & Conspectus Academy & DOOW-IT

DOON-IT ...together with us

PRESENTATION CONTENT

- / NFPA Ecosystem and Codes & Standards Roadmap
- What is the Fire & Life Safety Ecosystem?
- Your Role in the Fire & Life Safety Ecosystem
- ✓ Government Responsibility
- ✓ Development and use of Current Codes
- ✓ Referenced Standards
- Investment in Safety
- ✓ Skilled Workforce
- ✓ Code Compliance
- Codes Standards Guides: Making the Connection
- ✓ Preparedness and Emergency Response
- ✓ Why the Ecosystem Works
- Using NFPA Codes & Standards as a Roadmap for Success in Areas That Are Prone to Mass Scale Emergencies
- V Using NFPA Codes & Standards as a Roadmap for Success
- ✓ Government Responsibility in Implementing Codes & Standards
- Laws in Order of Authority in the United States
- Lessons Learned from Overseas Experiences



Kenneth Burson International Relations Representative NFPA

Kenneth Burson serves as the International Senior Liaison of Government Networks for the National Fire Protection Association (NFPA). Kenneth brings over 30 years of experience in structural and industrial firefighting, technical rescue, hazardous materials response, and aircraft firefighting. He has extensive experience in developing and ensuring compliance with standard operating procedures (SOPs) and accrediting bodies, with strict adherence to NFPA guidelines. Kenneth is a Graduate Member of the Institute of Fire Engineers and has had the opportunity to obtain extensive training and certifications in his fields of expertise. He has been requested for workshop courses, as a speaker for several international conferences and technical subject matter expert panels. He is the President and Founder of Legacy Elite Emergency Training & Consulting L.L.C., which provides training and advice to international emergency agencies and private industry rescue teams around the world.

Throughout his career, Kenneth has served as a Firefighter, Driver/Engineer, Lieutenant, Captain, and Training Officer, as well as a fire training consultant and subject matter expert for international corporations. He has worked with government and military emergency operations teams in multiple countries, on four continents. In addition, he has served as a member of the FEMA Urban Search and Rescue Teams as a canine search specialist (CSS) and later cross-trained as a technical search specialist (TSS).

Kenneth's role with the NFPA is the primary point of contact for emergency response needs as part of the Global Partnership Program, working closely with emergency responders, emergency managers, and government policymakers to identify training needs around the globe. This role is critical to the global vision for NFPA in expanding a requested service from international emergency response stakeholders.

CONFERENCE NOTES



Kenneth Burson provided helpful information about the NFPA Fire and Life Safety Ecosystem and regulations, which serve as a real roadmap for minimizing loss of life and property and enhancing public trust. This interconnected framework involves firefighting and emergency response teams, civil society organizations, and various stakeholders.



Kenneth Burson provided information about the historical disasters that occurred following fires and explosions in Bhopal, India in 1984; Chernobyl in 1986; North Sea in 1988; Mexico Gulf in 2010; Texas, USA in 2013; Tianjin, China in 2015; and Beirut, Lebanon in 2020. He shared details about the lives lost and the economic losses incurred due to these catastrophic events. Kenneth Burson also offered insights into the lessons and measures that need to be taken to prevent the recurrence of such disasters.



Kenneth Burson stressed that governments have a responsibility to protect society from fire, electricity, and other hazards. He emphasized that laws, policies, and investments should be planned according to public safety and community needs.



Kenneth Burson emphasized that non-compliance with standards could lead to damage to Personal Protective Equipment and injuries or death to emergency response teams. He highlighted the assistance provided by NFPA 1851 code and standard in the purchasing, cleaning, maintenance, and use of Personal Protective Equipment.



Kenneth Burson emphasized that first responders, forming the first and last line of defense, are expected to be prepared and respond not only to fires but also to all natural and humaninduced disaster and emergency risks. Therefore, he highlighted the importance of providing necessary support to first responders, ensuring they are well-trained and prepared for disaster and emergency risks. Additionally, he mentioned that everyone should learn about the disaster and emergency risks in their living and working areas to be able to assist first responders effectively.



Kenneth Burson emphasized the need to consider quality, maintenance, and replacement costs when purchasing equipment for firefighting teams. He also highlighted the importance of the purchasing authority being well-informed to make the right choices regarding the required equipment.







Kenneth Burson stated that the latest codes and standards developed by experts worldwide set minimum safety levels to protect people and property. He mentioned that these codes and standards are updated every 3-5 years.



Kenneth Burson provided examples from his international experiences and mentioned that companies in the private sector make their emergency response units mandatory. He expressed that these companies utilize government-approved training facilities to receive specialized training. He emphasized that this practice helps mitigate the complexity of interventions during emergencies.



Kennet Burson has emphasized the importance of using codes and standards in emergency and special operations during large-scale disasters by providing information about NFPA 1 Fire Code, NFPA 101 Life Safety Code, NFPA 1300 Community Risk Assessment and Community Risk Reduction Plan Development Standard, NFPA 1500 Fire Department Occupational Safety, Health, and Wellness Program Standard, NFPA 1600 Continuity, Emergency, and Crisis Management Standard, NFPA 1616 Standard for Mass Evacuation and Sheltering and Reentry Programs, and other codes and standards.



Kenneth Burson mentioned that chemicals used in the dry-cleaning process for Personal Protective Equipment (PPE) reduce the protective capabilities of garments. He pointed out that additional chemicals are needed to enhance the protective abilities of the equipment. Firefighting organizations and emergency response teams face challenges in ensuring that Personal Protective Equipment is appropriately cleaned, inspected, repaired, and stored due to misinformation from some manufacturers about the dry-cleaning process.



Birgitte Messerschmidt Research Director NFPA

Birgitte Messerschmidt is Director, Research, National Fire Protection Association.

She is responsible for NFPA's Research Strategy, Research on fire problems and other safety issues, Data collection efforts to maintain NFPA's fire incident and fire service databases and the NFPA Research library.

She has a M. Sc. In Civil Engineering from the Technical University of Denmark and has spent her entire career working on fire safety issues. Making our built environment more resilient to fire through better understanding of the impact of construction products and methods, as well as testing procedures and policy has been a career long passion.

She has been involved in testing and research as well as standardization and advocacy. She has published and presented numerous papers on fire safety issues.

PRESENTATION CONTENT

- Fire Safety in the Context of Sustainability
- Fire Safety
- The impact of Fire
- Context of Sustainability
- Environmental Impact of Fire: Emission Factors
- Social Impact of Fire: Poverty & The Risk of Fire
- Social Impact of Fire: The Invisible uS Fire Problem
- Relationship Between Shelter Vulnerability and Fire Risk
- Human Vulnerabilities to Fire
- Economic Impact of Fire Total Cost of Fire
- Economic Impact of Fire Economics Of FF Injuries
- Economic Impact of Fire Cost and Impact of Fire Protection
- It's a Complicated Problem but We Keep Adding Pieces to the Puzzle
- Fire is a Black Elephant
- Environmental Social Economic

CONFERENCE NOTES

Birgitte Messerschmidt stated that those who do not learn from historical events tend to repeat the same mistakes. She emphasized that NFPA learns from the past, continuously follows research conducted worldwide, and incorporates findings from fire data into NFPA codes and standards, sharing them with NFPA stakeholders.



Birgitte Messerschmidt stated that, when analyzing their own data and fire department records, economic losses due to fire are often considered direct property losses. She stressed the need to understand the impact for effective prevention of fire-related incidents.



Birgitte Messerschmidt mentioned significant gaps between how the impact of fire is measured and what is necessary to reduce the environmental, social, and economic effects of fire. She discussed the research efforts undertaken to fill these gaps.

Birgitte Messerschmidt emphasized the importance of aligning economic growth, social participation, and environmental protection for sustainable development. She highlighted the need for fire safety professionals to evaluate fire safety in terms of environmental, social, and economic impacts to speak about sustainability.



Birgitte Messerschmidt stated that, despite the availability of case studies and distribution models, these are best developed using gas emissions and atmospheric models. She also highlighted the importance of their gap analysis, determining the need for significant research to enhance understanding of the environmental impacts and costs of fires.



Birgitte Messerschmidt highlighted the importance of preventing deaths, injuries, property, and economic losses caused by fire by providing information on fire safety. She emphasized that the safety of building occupants and first responders is the focal point of all their efforts.



Birgitte Messerschmidt pointed out that the impact of fire is much greater than what we currently measure through existing data by using examples from global fires. Particularly, large forest fires and industrial fires create significant problems, including smoke pollution reaching large areas and affecting people living far away.



Birgitte Messerschmidt provided information about the environmental effects of fire, stating that most information regarding emissions from fires is available in the field of gas emissions caused by fires.



Birgitte Messerschmidt provided information about the research reports conducted in collaboration with research groups and NGOs in the United States regarding the social impacts of fire and the relationship between poverty and the risk of fire.



Birgitte Messerschmidt discussed their studies on the economic impact of firefighter injuries and the overall cost to society. She mentioned indirect costs such as productivity loss and reduced quality of life, in addition to medical expenses and work accident costs. She also shared that the cost of firefighter injuries in the United States ranges from 1.6 to 5.9 billion dollars.



The Economics of Firefighter Injuries in the United States: Executive Summary

FINAL REPORT BY: David T. Butry, David Webb, and Stanley Gilbert National Institut of Standards and Technology (NIST) Galamenicity, BU, Ostanenicity, Providence, RA, USA Economic Impact of Fire Economics of FF injuries

 Total annual cost and losses due to firefighter injuries, illnesses, exposures, and occupational disease estimated between \$1.6 Billion and \$5.9 Billion!



Conference speaker responses to questions provided by Conspectus. Links to standards/codes and other pertinent information is also provided. If further standard interpretation is required, visit http://www.nfpa.org/membership

Question #1 In multi-story buildings where large holdings are located, there is no clear information about the number of visitors and employees inside during emergencies requiring evacuation, as well as which floor they are on. The same situation persists after evacuation. Are there technologies, including artificial intelligence, that can be used in this regard?

Answer This is a multipart answer to address both occupancy issues and technologies for effective evacuation.

NFPA 1, Fire Code, advances fire and life safety for the public and first responders and property protection by providing a comprehensive, integrated approach to fire code regulation and hazard management. It addresses all the bases with extracts from and references to more than 130 NFPA codes and standards. It also addresses the general requirements versus the performance-based option. The owner, operator or occupant is responsible for compliance with this code. However, it is the Authority Having Jurisdiction (AHJ) can determine that a facility is safe or unsafe. This code also addresses Emergency Action Plans and each element that is required therein, which includes the evacuation of all persons in the facility.

NFPA 72, National Fire Alarm and Signaling Code provides the latest safety provisions to meet society's changing fire detection, signaling, and emergency communications demands. In addition to the core focus on fire alarm systems, the code includes requirements for mass notification systems. NFPA 72 incorporates Artificial Intelligence (AI), as well as Machine Learning (ML), into fire alarm, detection, and suppression systems.

NFPA 101, Life Safety Code, is the code that addresses with occupancy classifications, means of egress, fire protection features that are required as well as other life safety equipment requirements.

NFPA 951 is the Guide to Building and Utilizing Digital Information. This helps establish standards for information systems designed to support a communications pathway for all relevant components of the national preparedness and response framework in the United States, which includes computer-aided dispatch (CAD), record management systems (RMS), geographic information systems (GIS) and enhanced 911 systems. These systems should be evaluated and considered in your location...

NFPA 1616 Standard on Mass Evacuation, Sheltering, and Re-Entry Programs also discusses the organization for the advancement of structured Information standards (OASIS) and Internet of Things (IOT)

Question #2 Effective warning/alarm/announcement systems that prevent chaos during the evacuation of multi-story buildings in case of fire cannot be established. How can a system be designed and installed to prioritize the evacuation of floors requiring urgent evacuation without causing chaos?

Answer: The question is about a warning system, however, the warning system is only as effective as the message that the system is sending to facility occupants. Without a plan of action when those signals are broadcast, it simply confusion noise. Emergency action plans are critical in reducing chaos. Bear in mind that all chaos cannot be mitigated in an emergency incident. This includes establishing emergency drills or exercises with sufficient frequency to familiarize occupants with the drill procedures and to establish the conduct of the drill as a matter of routine. Of course, emphasis shall be placed on orderly evacuation rather than on speed. These emergency action plans cannot be generic and should be specific to each occupancy to be the most effective. While it is the building owner, operator or occupants who are responsible for generating this plan, and maintaining effective use of drills and exercises, this plan should be shared with the Authority Having Jurisdiction (AHJ) for review. As new information is learned from the evacuation process and emergency action plan exercises, this plan needs to be updated to reflect lessons learned.

Conference speaker responses to questions provided by Conspectus. Links to standards/codes and other pertinent information is also provided. If further standard interpretation is required, visit http://www.nfpa.org/membership

Question #3 How can a proper system be established by building managements to ensure coordination or accurate communication between emergency teams of different companies working in the same building/plaza?

Answer NFPA 1 Fire Code and NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems are the standards that address the specific information regarding communication capabilities. However, only with training and skills proficiency can accuracy and coordination really be established.

As with the previous question, the question is about a system, however, the system is only as effective as the prior planning, drills, or exercises that the system is sending to facility management, building occupants and even first arriving emergency responders. Without a plan of action when those signals are broadcast, it simply confusion noise. Emergency action plans are critical in reducing chaos. Bear in mind that all chaos cannot be mitigated in an emergency incident. This includes establishing emergency drills or exercises with sufficient frequency to familiarize occupants with the drill procedures and to establish the conduct of the drill as a matter of routine. Of course, emphasis shall be placed on orderly evacuation rather than on speed. These emergency action plans cannot be generic and should be specific to each occupancy to be the most effective. While it is the building owner, operator, or occupants who are responsible for generating this plan, and maintaining effective use of drills and exercises, this plan should be shared with the Authority Having Jurisdiction (AHJ) for review. As new information is learned from the evacuation process and emergency action plan exercises, this plan needs to be updated to reflect lessons learned.

Question #4 In Turkey, the emergency management structure for companies' fire risks is not organized at a level that meets the needs. What are NFPA's recommendations for an effective **Emergency Management structure?**

Answer: In the NFPA Fire and Life Safety Ecosystem, we address the need for all levels of government to take responsibility in creating a policy and regulatory environment that keeps prioritizes public safety needs, and not special interests. Recent polls show that many citizens feel that the government is accountable for general public safety, but they assume that this is taking place in their best interests. This cog in the Fire and Life Safety Ecosystem is a major component, however is another cog, the Informed Public that is engaged to ensure that these public safety initiatives are being addressed, have transparency with the public, and are upholding their duty to public safety.

NFPA 1660 Standard for Emergency, Continuity, and Crisis Management: Preparedness, Response, and Recovery is the standard that can provide the most assistance on this matter as far as business continuity is concerned.

From an emergency operations perspective, NFPA 1561 is the Standard on Emergency Services Incident Management Systems and Command Safety, This addresses requirements to be used by emergency services for the structure and operations of an incident management system and the principles of command safety that are to be incorporated into all incidents, training or emergency, to ensure the safety of emergency responders and others on the scene of an incident.

Conference speaker responses to questions provided by Conspectus. Links to standards/codes and other pertinent information is also provided. If further standard interpretation is required, visit http://www.nfpa.org/membership

Question #5 Turkey is a country prone to disasters, and a major earthquake is expected in Istanbul soon. How is NFPA conducting a project to reduce the effects of fire risks after urban disasters? How does it leverage its international experiences in this regard?

Answer This is a very complex question, yet a critical one.

NFPA Standards Council reviewed a consolidation plan for the Emergency Response & Responder Safety (ERRS) voted to consolidate several codes and standards into one new standard for ease of use to Members. This new standard will be known as NFPA 2500 Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for **Emergency Services**, which combines many other NFPA codes related to this same subject.

NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications. This standard identifies the minimum job performance requirements (JPRs) for fire service and other emergency response personnel who perform technical rescue operations. This standard is critical for emergency responders to have the training, equipment and skills proficiency to respond to this type of mass-scale disaster.

NFPA 1561 is the Standard on Emergency Services Incident Management Systems and Command Safety. This addresses requirements to be used by emergency services for the structure and operations of an incident management system and the principles of command safety that are to be incorporated into all incidents, training or emergencies, to ensure the safety of emergency responders and others on the scene of an incident.

NFPA 1660 Standard for Emergency, Continuity, and Crisis Management: Preparedness, Response, and Recovery is the standard that can provide the most assistance on this matter as far as business continuity is concerned.

Learn more about the NFPA 2500 consolidation project here: https://www.nfpa.org/education-and-research/emergency-response/emergency-response-and-responder-safetyconsolidation-project?l=104

Question #6 What are the impacts on fire risk of safety measures to be taken during the storage and transportation of hazardous chemicals?

Answer NFPA 400, Hazardous Materials Code, consolidates fundamental safeguards for the storage, use, and handling of hazardous materials in all occupancies and facilities. However, the Code does not apply to storage or use of hazardous materials for individual use on the premises of one- and two-family dwellings. In the United States, the Code for Federal Regulations dictate how hazardous materials are transported. This was also enacted into law in 1975 by the US Congress known as the Hazardous Materials Transportation Safety and Security Act, and it was renewed in 2005. Several other laws and regulations govern mandatory compliance and establish penalties for violations and non-compliance. These codes address transport by mode (air, rail, roadway, or waterway) as well as specific packaging and container requirements.

As we have seen in recent history in Tianjin, China, Beirut, Lebanon, and near Taipei, Taiwan improperly stored hazardous materials, dangerously high quantities of materials and/or material incompatibility can have disastrous consequences. The American Chemical Society (ACS) provides exceptional guides for chemical storage and compatibility, which is referenced in NFPA 1.

Conference speaker responses to questions provided by Conspectus. Links to standards/codes and other pertinent information is also provided. If further standard interpretation is required, visit http://www.nfpa.org/membership

Question #7 In high-risk industrial facilities, what are the benefits of using artificial intelligence in detecting and extinguishing basic fire risks?

Answer NFPA 72, National Fire Alarm and Signaling Code provides the latest safety provisions to meet society's changing fire detection, signaling, and emergency communications demands. In addition to the core focus on fire alarm systems, the Code includes requirements for mass notification systems. NFPA 72 incorporates Artificial Intelligence (AI), as well as Machine Learning (ML) into fire alarm, detection and suppression systems.

NFPA 90B, Standard for the Installation of Warm Air Heating and Air-Conditioning Systems addresses new emerging technology such as Internet of Things (IoT) for building HVAC systems, which can aid in smoke control, smoke evacuation and dampers.

NFPA 1616 Standard on Mass Evacuation, Sheltering and Re-Entry Programs, also discusses the organization for the advancement of structured information standards (OASIS) and Internet of Things (IOT).

Additionally, NFPA 2800, Standard on Facility Emergency Management Action Plans_discusses use of Internet of Things (IOT) in performing a risk assessment for facilities.

Question #8 Can you provide information on designing a fire protection system for an airport terminal building using standards such as NFPA 13 and NFPA 415?

Answer Currently, NFPA does not offer consulting/design/engineering services. We develop codes and standards that provide guidance to professionals in different roles. NFPA standards are a fundamental part of the primary fire, life safety, building and electrical codes and standards, and provide critical guidance to designers, installers, facility operators, and enforcers.

Question #9 What are the causes of facade fires in tall buildings, and what precautions can be taken?

Answer Facade fires can be caused by the following:

A fire starting within the building which then grows big enough to break the window and then impinge on the facade. This ignition potential can be controlled by using sprinklers within the building.

- Fire on balconies often started by discarded smoking materials or BBQ equipment. Balconies are often not sprinklered and hence the fire can grow quickly.
- Fire in a car, trash container or other mechanical equipment positioned next to the facade.

For a detailed overview of facade fire risk, I recommend that you check out the User Guide for NFPA EFFECT at: www.nfpa.org/exteriorwalls

Conference speaker responses to questions provided by Conspectus. Links to standards/codes and other pertinent information is also provided. If further standard interpretation is required, visit http://www.nfpa.org/membership

Question #10 Fire engineering is still developing in our country. Can you provide information on performance-based fire engineering with risk assessment in industrial facilities?

Answer NFPA 1616 Standard on Mass Evacuation, sheltering and re-entry programs also discusses the Organization for the advancement of structured information standards (OASIS) and Internet of Things (IOT).

Additionally, NFPA 2800-Standard on Facility Emergency Management Action Plans discusses use of Internet of Things (IOT) in performing a risk assessment for facilities.

Question #11 NFPA has released a new standard regarding the installation of fuel gas detection and alarm equipment. Can you provide information on this topic?

Answer NFPA 715, Standard for the Installation of Fuel Gases Detection and Warning Equipment, provides requirements for this vital equipment intended to warn occupants of the presence of gas in time to escape or take other action. The document addresses the selection, design, application, installation, location, performance, inspection, testing, and maintenance of fuel gas detection and warning equipment in buildings and structures.

This brand-new standard is essential for anyone concerned with helping to ensure safer fuel gas system installations.

NFPA 715, addresses the means of signal initiation, transmission, notification, and annunciation, the levels of performance, and the reliability of fuel gas detection and warning equipment.

Featured topics:

- Fundamentals of fuel gas detection systems
- Protected premises fuel gas detection systems
- Notification appliances for fuel gas detection systems
- Single- and multiple-station alarms and household fuel gas detection

Conference speaker responses to questions provided by Conspectus. Links to standards/codes and other pertinent information is also provided. If further standard interpretation is required, visit http://www.nfpa.org/membership

Question #12 Can you provide information on emergency risks and management that may arise in solar energy systems installed on the roof of a horizontal architectural building?

Answer Photo Voltaic (PV) Panels on roofs can impact fire risk and emergency management in the following ways:

- If the PV Panels are not equipped with a shut off switch the panels will continue to be electrified during a fire. Extreme care should be taken when extinguishing fires in buildings with PV panels that are still live.
- PV panel systems can be a cause of fires themselves due to the significant amount of electrical connections that are part of the system. This can be mitigated by having requirements to the electrical systems and training and certification of installers.
- Having PV panels on teh roof will impact the fire performance of the entire roof. Due to the thermal feedback from the PV panel to the roof a fire will spread quicker even on roof systems, which were otherwise approved as fire safe. To mitigate this it is recommended to follow the guidance from FM Global. More information on this can be found in the following reports:

https://www.nfpa.org/education-and-research/electrical/energy-storage-systems

https://www.nfpa.org/education-and-research/fire-protection-research-foundation/projects-and-reports/commercial-roof-mounted-photovoltaic-system-installationbest-practices-review

NFPA Online Training Series: https://www.nfpa.org/for-professionals/training-for-me/electrical-training/photovoltaic-and-energy-storage-systems-online-training-series

isa.ersoy@conspectusdanismanlik.com

Conspectus Academy

For your questions;

İsa Ersoy

- +90 544 810 56 27
- +90 212 970 20 50
- www.flsconference.com