NFPA/University of Maryland 2022 Ecosystem Symposium Program



September 28-29, 2022 The Hotel in College Park, MD

Welcome Symposium Attendees



Welcome to the first UMD-NFPA Fire & Life Safety Ecosystem Symposium. In development for quite some time now, the symposium features thought provoking presentations from six terrific keynote speakers. You will then have a chance to engage with others in two breakout sessions of your choice. The breakout sessions are designed to have you bring your different professional backgrounds and interact on topical issues involving the use of the NFPA Fire & Life Safety Ecosystem. The fundamental purpose of this meeting is to get all of us out of our usual silos to understand how to appreciate the multi-disciplinary aspect of the ecosystem to better apply and address fire safety challenges in buildings and communities.

Your presence is important, and your ideas appreciated. I look forward to seeing you at the symposium.

Jim Milke

Professor and Chair Department of Fire Protection Engineering University of Maryland

NFPA is excited to join with the University of Maryland Department of Fire Protection Engineering to help tackle the fire and life safety challenges of our times. We are thrilled that the Department of Fire Protection Engineering, a highly acclaimed source of knowledge in the field and an excellent partner in advancing safety, has gathered such a great group to examine real life examples within the framework of the NFPA Fire & Life Safety Ecosystem. This event embodies the theory behind the ecosystem, which is that we all play a role in safety. In order to reduce loss, we have to recognize that our success comes when all the pieces of the ecosystem are functioning together.

Your work during this symposium will be widely shared and provide great insights about ways each discipline can not only strengthen its cog, but more fully utilize the interdependencies of the others to better protect people and property from the myriad of hazards we see today.

Jim Pauley

President and CEO National Fire Protection Association







University of Maryland-NFPA Fire & Life Safety Ecosystem Symposium Schedule

Day 1

7:30 am - 8:30 am	Breakfast		
8:30 am - 8:45 am	Welcome		
8:45 am - 9:30 am	Keynote Speaker, Jim Pauley, "Connecting the Dots of Fire and Life Safety – A Framework to Achieve Greater Success in Reducing Lire Loss"		
9:30 am - 10:15 am	Keynote Speaker, John Barylick, Esq., "Lessons from the Station Nightclub Fire – America's Deadliest Rock Concert"		
10:15 am - 10:45 am	Break		
10:45 am - 11:30 am	Keynote Speaker, Birgitte Messerschmidt, M.Sc. "Fire Safety in the U.S. Since 1980 – Through the Lens of the NFPA Fire & Life Safety Ecosystem"		
11:30 am - 12:15 pm	Keynote Speaker, Margaret McNamee, Ph.D. "Sustainable Fire Safety – An Oxymoron or Simply Common Sense?"		
12:15 pm - 1:15 pm	Lunch		
1:15 pm - 1:30 pm	Introduction to the Workshop Sessions (Part 1) on "Case Studies"		
1:30 pm - 2:30 pm	 Workshop Sessions, Part 1 "Case Studies" Attendees will analyze and discuss case studies that illustrate weaknesses in the Fire & Life Safety Ecosystem. Examples include: Ghost Ship Warehouse fire, Oakland, CA (2016) The Grenfell Tower Fire, London, UK (2017) The Camp Wildfire, Butt County, CA (2018) 		
2:30 pm - 2:45 pm	Break		
2:45 pm - 4:00 pm	Workshop Sessions, Part 1		
4:00 pm - 4:20 pm	Break		
4:20 pm - 5:00 pm	Workshop Reports, Part 1		
5:00 pm - 5:15 pm	Day 1 Wrap-up & Review Plans for Day 2		
5:15 pm - 6:15 pm	Reception		

University of Maryland-NFPA Fire & Life Safety Ecosystem Symposium Schedule

Day 2

7:30 am - 8:30 am	Breakfast		
8:30 am - 8:45 am	Welcome		
8:45 am - 9:30 am	Keynote Speaker, Ber "Property Loss Preve		
9:30 am - 9:45 am	Introduction to the We		
9:45 am - 10:30 am	 Workshop Sessions, "Contemporary Issued Attendees will explore and discuss how it ap The residential fire Fire hazards and rise energy solutions Fire safety design we (e.g., high-rise timb) 		
10:30 am - 11:00 am	Break		
11:00 am - 12:00 pm	Workshop Sessions, I		
12:00 pm - 1:00 pm	Lunch		
1:00 pm - 2:00 pm	Workshop Reports, P		
2:00 pm - 2:30 pm	Break		
2:30 pm - 3:00 pm	Summary of worksho		
3:00 pm - 3:45 pm	Keynote Speaker, Ch "The Ammonium Nitr – An Illustration of the		
3:4 <mark>5 pm</mark> - 4:00 pm	Closing		

Interested attendees of this program can receive 1.2 CEU's.

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Part 2

Part 2

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Symposium Hosts and Chairman



SYMPOSIUM HOST

Professor Jim Milke, Ph.D., P.E., FSFPE Chair, Department of Fire Protection Engineering University of Maryland milke@umd.edu

Dr. Jim Milke, P.E. has served on the faculty of the University of Maryland's Department of Fire Protection Engineering for over 40 years and has been chair of the department for the last 11 years. Prior to joining the university, Jim served as a fire protection engineer for Fairfax County, Virginia and as a research fire prevention engineer at the National Institute of Standards and Technology (NIST).

A global thought leader in the field of fire protection and life safety, Dr. Milke is a Fellow and past president of the Society of Fire Protection Engineers (SFPE) and is a member and past chair of the NFPA Committee on Smoke Management Systems. Throughout his career, Professor Milke has received awards for teaching, communications and service from the University of Maryland, NFPA, SFPE, the Automatic Fire Alarm Association, and the Siemens Building Technology Division.

Having earned a B.S. degree in Physics from Ursinus College (PA), Jim went on to earn a B.S. degree in fire protection engineering, a M.S. degree in mechanical engineering, and a Ph.D. degree in aerospace engineering, all from the University of Maryland.



SYMPOSIUM HOST

Lorrain Carli, M.Ed. Vice President – Outreach and Advocacy National Fire Protection Association lcarli@nfpa.org

Lorraine Carli is vice president of outreach and advocacy for the National Fire Protection Association, where she oversees media, public affairs and advocacy activities; the organization's magazine NFPA Journal; NFPA's Wildfire, Public Education and US/Canada Regional Operations Divisions; Community Risk Reduction and Stakeholder Engagement.

Carli is president of the Home Fire Sprinkler Coalition and past president and current member of the Board of Directors for The Phoenix Society for Burn Survivors. In addition, she is a member of the Board of Directors for the National Fallen Fire Fighters Foundation and president of the Electric Safety Foundation International (ESFI) board of directors.

Carli holds a bachelor's degree in journalism from Northeastern University and a master's degree in education from the University of Massachusetts. She has been an adjunct professor at Suffolk University in Boston, teaching graduate public relations courses.

SYMPOSIUM CHAIR

Dr. Robert C. Andrews. Jr., P.E., DBA, FIFireE, PMSFPE, EFO President & CEO The Bob Andrews Group, LLC rcandrews@ bobandrewsgroup.com

Bob Andrews founded Protection Development, Incorporated, (PDI) in 1985 and currently serves as its President and CEO. Mr. Andrews is a Texas Licensed Professional Engineer (fire protection branch specialty), a Fellow of the Institution of Fire Engineers (UK), and a Professional Member of the Society of Fire Protection Engineers (USA). He has been practicing fire protection engineering for over forty years and has specialized in the fire safe design of very complicated and unusual projects. He is a life member of the National Fire Protection Association (43 years) and a life member of the International Association of Fire Chiefs (40 years).

Highly unusual amongst fire protection engineers, Chief Andrews was an active member of the fire service for 40 years, having joined his local volunteer fire company in suburban Philadelphia when he was sixteen years old. His fire service experience includes serving with the East Whiteland Volunteer Fire Association (PA), the College Park Volunteer Fire Department (MD), the Phoenix Fire Department (AZ), Marathon Oil Company (OH), Celanese Chemical Company (TX), the Refinery Terminal Fire Company (TX) and Industrial Emergency Services (TX). He was one of the first Emergency Medical Technicians in the United States having received his Pennsylvania and National Registry EMT licenses in 1975. In addition to his fire service credentials, Mr. Andrews has been a Licensed Texas Peace Officer for over thirty years and currently holds Master Peace Officer and Instructor certifications. He is an internationally recognized police dog trainer and is currently commissioned as a

Reserve Deputy Fire Marshal with the Bexar County (San Antonio, Texas) Fire Marshal's Office. In his role as a deputy fire marshal, Mr. Andrews serves as a non-paid Texas peace officer with full-time arrest authority.

Chief Andrews received the National Fire Academy's Executive Fire Officer (EFO) Program's 1990 Outstanding Research Award for his paper that discussed the feasibility of applying the Incident Command System to incidents in the refining and petrochemical industry. He was one of the first industrial fire chiefs to earn the prestigious Chief Fire Officer (CFO) Designation in 2003 and is an internationally recognized author and speaker having delivered emergency response, industrial firefighting, and railroad fire-safety presentations in the United States, Jamaica, France, Singapore, Saudi Arabia, the United Kingdom, Canada, Poland, and Germany.

In recognition of his life-long professional achievements, significant contributions and distinguished service to the nation's fire & emergency services and fire protection disciplines, on October 12, 2021, Chief Andrews was inducted into the National Fire Heritage Center's Hall of Legends Legacies & Leaders. Chief Andrews is a member of the Class of 2022 and is Inductee #0098.

A committed life-long learner, Bob earned a B.Sc. degree in Fire Protection Engineering from the University of Maryland in 1980, a M.Sc. degree in Executive Fire Service Leadership from Grand Canyon University (AZ) in 2002, and a Doctor of Business Administration degree from Temple University in Philadelphia in 2022. He is a 2002 graduate of the National Fire Academy's Executive Fire Officer program and a 2008 graduate of Michigan State University's Railway Management Program.

Day 1 – Main Session

Connecting the Dots of Fire and Life Safety -A Framework to Achieve Greater Success in Reducing Fire Loss



KEYNOTE SPEAKER

Jim Pauley President and Chief Executive Officer National Fire Protection Association publicaffairs@nfpa.org

Jim Pauley is the President and

Chief Executive Officer of the National Fire Protection Association (NFPA), a global self-funded nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical, and related hazards. The association, which is headquartered in Quincy, Massachusetts, USA, began its work to solve the fire problem in a young, industrialized nation in 1896 and is recognized around the globe today as a leader in advocating for safety.

NFPA delivers information and knowledge through more than 325 consensus codes and standards, research, training, education, outreach, and advocacy; and by partnering with others who share an interest in furthering the NFPA mission. NFPA recognized its 125th Anniversary in 2021 and continues its steadfast commitment to advancing fire and life safety for the next century and beyond.

Mr. Pauley is leading an historic digital transformation at NFPA that is revolutionizing the way codes and standards information is delivered and used throughout the world. In addition, he is directing significant programs, initiatives, and resource development, to tackle both persistent and emerging threats.

Prior to joining NFPA nearly eight years ago, Mr. Pauley concluded a 30-year career in the electrical and energy industry where he most recently served as Senior Vice President, External Affairs and Government Relations, for Schneider Electric.

Mr. Pauley has served in several past leadership positions including Chairman of the Board for the American National Standards Institute (ANSI).

He holds a bachelor's degree in Electrical Engineering from the University of Kentucky and was a licensed professional engineer in Kentucky.

Day 1 – Main Session

Lessons From the Station Nightclub Fire – America's Deadliest Rock Concert



KEYNOTE SPEAKER

John Barylick, Esq. Adjunct Professor Roger Williams University School of Law and of Counsel Foley / Cerilli, P.C. Providence, Rhode Island killershowbook@gmail.com

John Barylick is a lawyer practicing since 1977. He was one of the lead plaintiffs' attorneys in civil litigation resulting from the tragic 2003 Station Nightclub Fire in West Warwick, Rhode Island in which 100 persons were killed and hundreds injured. His work was instrumental in amassing 176 million dollars in settlements for the victims of the fire.

John is the author of KILLER SHOW: The Station Nightclub Fire, America's Deadliest Rock Concert, published by University Press of New England. He has been an adjunct professor at Boston University School of Law, a guest lecturer at Harvard University School of Law, and an invited presenter to the U.S. National Fire Academy, state fire academies, risk management conferences, arson investigation conferences and event safety conferences throughout the United States and Canada.

John's keynote presentation to this NFPA conference will discuss the multiple causes of the Station Nightclub Fire and highlight how adherence to fire code and NFPA standards would have averted the tragedy.

Day 1 – Main Session

Fire Safety in the U.S. Since 1980 -Through the Lens of the NFPA Fire & Life Safety Ecosystem

KEYNOTE SPEAKER



Birgitte Messerschmidt, M.Sc. Director. Research National Fire Protection Association BCollins@NFPA.org

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.

In the early part of her career, Birgitte focused on fire testing and how the performance of different products can impact fire development. She was involved in the development and implementation of the harmonized EU fire testing and classification system for construction products. Other areas of work include fire performance of facades, fire toxicity, fire fighter health and safety, fire resilience of the built environment, fires in the Wildland Urban Interface and fire data collection and analysis. She has been active in international standardization and has advocated for fire safety policies around the world.

Making our built environment safer and 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 published and presented numerous papers on fire safety issues.

Birgitte earned an M.Sc. degree in Civil Engineering from the Technical University of Denmark and has spent her entire career working on fire safety issues.

Day 1 – Main Session

Sustainable Fire Safety – an Oxymoron or Simply Common Sense?



KEYNOTE SPEAKER Professor

Margaret McNamee, Ph.D. Fire Safety Engineering, School of Engineering Lund University, Sweden

margaret.mcnamee@brand.lth.se

Margaret McNamee is Professor in Fire Safety Engineering in the Department of Building and Environmental Technology at Lund University in Sweden. She has her technical expertise in understanding and characterizing the environmental impact of fires and has worked in the field of fire and combustion research for more than 30 years. The focus of her research in recent years has been on fire safety & sustainability, and research concerning the Fire and Rescue Services of the future. She has more than 110 international publications (including five book chapters) and is co-editor of the very first Handbook on the Environmental Impact of Fires, in addition to over 40 Technical Reports in the field.

Climate change is one of the most significant challenges of our age. Numerous activities have been launched since the 1980's to highlight human impact on the environment, e.g., the United Nations World Commission on Environment and Development in 1983 (also called the Brundtland Commission) which vielded the report Our Common Future and the accepted definition of a sustainable society, i.e., a society where the needs of present generations are met without endangering the potential for future generations to meet their needs. In the 1990's this ground-breaking work led to Agenda 21 and later Agenda 2030, which expressed sustainability in three dimensions: environmental, societal and economic sustainability. All three dimensions are needed for a product, service or system to be truly sustainable.

The built environmental creates a significant carbon footprint, e.g., in terms of energy needs, embodied carbon and waste production. In recognition of the

need to reduce the carbon footprint of the built environment, initiatives were started around the world to improve building sustainability, e.g., by improving the energy efficiency of buildings and increasing the use of "green" materials and attributes in buildings. These efforts are laudable and should continue, but some significant incidents have resulted from a simplistic reliance on fire safety regulations, coupled to a failure to recognize the impact that design choices driven by sustainability objectives might have on fire safety.

In this presentation, Professor McNamee will argue for the need to consider sustainability from a holistic perspective and the need to create a Sustainable and Fire Resilient Built Environment (SAFR-BE) to ensure that both sustainability and fire safety objectives are applied together, as part of building design. The concept of sustainable fire safety as explored by McNamee will illustrate that these objectives do not need to be conflicting, and that sustainable fire safety makes sense. At its heart of this understanding of fire safety and sustainability, lies the need to consider a system holistically, to recognize that sustainability is not the whole jigsaw puzzle but just a part of the Fire & Life Safety Ecosystem. When considering fire safety and sustainability together, we recognize the value of considering an investment in safety in relation to the development of codes and standards, code compliance an informed public and much more.

Day 1 – Breakout Sessions – Case Studies

The Camp Wildfire



FACILITATOR

Yana Valachovic, M.S., RPF County Director -Forest Advisor University of California Cooperative Extension -Humboldt and Del Norte Counties yvala@ucanr.edu

Yana Valachovic is a California registered professional forester and forest scientist whose skills and interests cover a broad set of natural resource fields. She has worked as an extension agent at the University of California since 2000. Over the last

decade, much of her work has pivoted from forestry to wildfire mitigation, given California's challenges. She has published papers on fire behavior in coastal California forests and the intersection of fire performance in home and landscape design. In her role, she is active in California policy development and has been a technical resource for bioenergy, forest management, home hardening, and improvements to defensible space legislation. Yana works at many scales and is a leader in developing and delivering local and state strategies to improve wildfire resilience.

Yana will bring this panel her policy perspectives and research on the 2018 Camp Fire, where she and colleagues investigated housing arrangement and vegetation-related factors associated with home survival provided. They also explored whether California's 2008 adoption of exterior building codes for homes built in the wildland-urban-interface (WUI) improved survival. Homes built before 1997 fared poorly, with only 11.5% surviving, compared with 38.5% for homes built in 1997 and after. The difference in survival percentage for homes built immediately before and after adopting Chapter 7A in the California Building Code (37% and 43%, respectively) was not statistically significant. Distance to nearest destroyed structure, number of structures destroyed within 100 m, and overstory canopy cover within 100 m of the home were the strongest predictors of survival. Most fire damage to surviving homes resulted from radiant heat from nearby burning structures or flame impingement from the ignition of near-home combustible materials, the latter highlighting the value of eliminating combustible items in the area closest to the home (0-1.5 m). Survival of newer homes increased significantly when they were >18m away from a destroyed structure and with lower canopy cover within 100 m. The findings, corroborated by photographs taken of damaged but not destroyed homes, indicate that structural fuels (burning homes, sheds etc.) and wildland fuels influenced the likelihood of home survival, pointing to changes that could substantially improve outcomes. <u>https://</u> doi.org/10.1186/s42408-021-00117-0

Yana Valachovic earned a M.S. Degree from Oregon State University in 1998.

Day 1 – Breakout Sessions – Case Studies The Ghost Ship Fire

FACILITATOR



Birgitte Messerschmidt, M.Sc. Director, Research National Fire Protection Association BCollins@NFPA.org

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.

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Making our built environment safer and 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 published and presented numerous papers on fire safety issues.

Birgitte earned an M.Sc. degree in Civil Engineering from the Technical University of Denmark and has spent her entire career working on fire safety issues.

Day 1 – Breakout Sessions – Case Studies The Grenfell Tower Fire



FACILITATOR

Mike Crowley, P.E., FSFPE Principal Advisor, Fire Protection Engineering Coffman Engineers, Inc. mike.crowley@coffman.com

Great fire protection and life safety design integrated into the

design of a building is Mike's approach to a safe built environment. Mike is a principal advisor with over 40 years of fire protection consulting experience in unique structures around the world ranging from NFL Football stadiums to high-rise atrium office buildings. He is a subject matter expert in healthcare fire protection and life safety. Other industry-related activities include NFPA Codes and Standards development.

Mike is an instructor for NFPA's Life Safety Code Course (NFPA 101), NFPA 99, and ASHE on NFPA 99, and a frequent speaker on topics including code compliance in healthcare and fire protection engineering in the built environment.

Mike lives in Houston and is establishing Coffman's fire protection practice in the area and throughout Texas.

Day 2 – Main Session

Property Loss Prevention: Building Resilience in the NFPA Ecosystem



KEYNOTE SPEAKER

Benjamin Ditch, M.Sc. Senior Lead Research Engineer & Assistant Vice President FM Global Research Department benjamin.ditch@fmglobal.com

Benjamin Ditch is the Technical Team Leader of the Large-Scale

Fires Team with 22 years of experience in fire hazard analysis and specialty fire protection system design. He is responsible for the development and implementation of large-scale testing, including specialty hazards such as ignitable liquids, non-standard storage, and emerging technologies. Mr. Ditch's current research interests include protection for automatic storage and retrieval systems, energy storage systems, and lithium-ion batteries.

For over a decade, Benjamin has been a frequent contributor to publicly focused research programs that are aimed at informing building codes and standards, such as programs sponsored by the Fire Protection Research Foundation. Through these efforts he has provided technical direction or research services for a wide range of topics including the use of high-volume low-speed fans, mass timber construction, and the fire safety challenges of green buildings. He further serves as a technical committee member for NFPA 855, Electric Energy Storage Systems, and is a technical panel member for UL 9540, Standard for Energy Storage Systems and Equipment.

In this presentation, Benjamin will discuss the role of research and science-based engineering in shaping loss prevention guidance and influencing engineering practices. The concept of risk reduction, which is commonly adopted in commercial insurance, will be used to explore how fire protection measures can impact both the frequency and consequences of a fire event. This will bring the perspective of property loss prevention into the context of the NFPA Fire and Life Safety Ecosystem. Benjamin has an B.S. in Mechanical Engineering and an M.S. in Fire Protection Engineering from Worcester Polytechnic Institute in Worcester MA, USA.

Day 2 – Breakout Sessions – Contemporary Issues

Alternative Energy Sources



FACILITATOR Noah L. Ryder, Ph.D., MBA, P.E., NAFI Managing Partner Fire & Risk Alliance, LLC nryder@firetiskalliance.com

For over 20 years Dr. Noah Ryder has focused on under-

standing fire and explosion's interaction with both built and natural environments. He presently serves as a Principal Engineer and Managing Partner at Fire & Risk Alliance, LLC. and leads the Risk, Modeling, Applied Research, and Forensics group. He is a licensed professional fire protection engineer and focuses on how safety can be improved through the use of quantitative risk assessments, hazard evaluations, computer modeling, applied research, and performance-based design. Dr. Ryder is the Technical Committee Chair for the SFPE Foundation, actively serves on multiple NFPA technical committees, and frequently publishes and presents his work.

Dr. Ryder is knowledgeable in the application of empirical and numerical models and laboratory testing and has led numerous large consulting projects and applied research programs. Dr. Ryder's extensive experience has included Faculty Lead for the development of the UMD Hyperloop project, development of patented fire detection systems, and work on the largest battery energy storage facility in the world. Dr. Ryder's knowledge and experience has been used globally within the transportation sector, energy storage, automated and large-scale warehousing operations, utility and process industries, oil and gas industries, as well as large commercial, residential, and entertainment and amusement facilities.

Dr. Ryder teaches Fire & Explosion Investigation and Industrial Fire Protection Engineering courses at the University of Maryland in the Fire Protection Engineering Department and teaches the Advanced Enclosure Fire Dynamics course at University of Waterloo. He is a Licensed Fire Protection Engineer and Certified Fire and Explosion Investigator.

Noah earned a B.Sc. in Fire Protection Engineering in 1999 and a M.Sc. in Fire Protection Engineering in 2000, both from the University of Maryland. In 2004 he earned a Master of Business Administration degree from the R.H. Smith Business School at the University of Maryland at College Park. Noah earned a Ph.D. in Mechanical and Mechatronics Engineering at the University of Waterloo, Ontario, Canada in 2019.

Day 2 – Breakout Session – Contemporary Issues

The Residential Fire Problem



FACILITATOR Assistant Chief Joseph M.

Jardin, P.E., M.Sc. Chief of Fire Prevention Fire Department of New York joseph.jardin@fdny.nyc.gov

During his more than 35 years with the Fire Department of

New York (FDNY), Joe has served as a firefighter and fire officer in engine, ladder, rescue and squad companies. As a chief officer, Joe spent several years in the department's Rescue Operations Battalion, served as the agency's Chief of Safety, and is currently FDNY's Chief of Fire Prevention. Before joining the FDNY, Joe was employed by Bechtel Power Corporation and the National Fire Protection Association as a Fire Protection Engineer. Chief Jardin has served as a member and Chair of numerous NFPA technical committees and also spent seven years as a member of NFPA's Standards Council. He and currently chairs the NFPA 1700 – Guide for Structural Firefighting committee.

On the morning of Sunday January 9, 2022, FDNY responded to the report of a fire at 331 East 181 Street. Arriving units discovered a fire on the second floor of a "duplex-down" apartment (apartment occupying floor area on the second and third floors with access on floor three) in a 19-story fireproof building. 17 fatalities resulted, in large part because of the combined impact of an open door serving the fire apartment and numerous open (not selfclosing) exit stair and apartment doors throughout the building. Significant smoke conditions were discovered on the majority of the 19 floors, placing many building occupants in a perilous situation. Firefighters rescued more than 100 occupants. EMS and fire resources provided patient care to 32 patients with life threatening injuries. Despite the significant loss of life, through their determined efforts, emergency responders saved numerous lives that morning.

The cause of the fire was determined to be a space heater proximate to bedding material on the lower level of the apartment building. Absent the lack of automatic sprinkler protection, the open condition of many of the required self-closing doors, not only played a prominent role in contributing to the injuries and deaths, but also presented challenges to search, rescue and fire extinguishment operations. First occupied in 1972, the building was built with the intention of providing affordable housing. At the time of the fire, the building had a considerable immigrant population, including many families from West Africa.

This breakout session will explore the current day residential fire problem, with a focus on low-income communities, and discuss the current trend to introduce legislative action (or non-action) to promote the increased inventory of low-income housing alternatives. The session will also discuss what fire and life safety measures are either being implemented, or sacrificed, and then relate these experiences through the lens of the NFPA Fire & Life Safety Ecosystem.

A 1983 graduate of the University of Maryland's Fire Protection Engineering program, Joe went on to earn a Master of Science in Management degree. In addition to his college education, Chief Jardin has participated in the Naval Post Graduate School's Homeland Security Executive Leadership Program, has completed FDNY's Fire Officer Management Institute – a Columbia University Executive Leadership Program, and has also completed the FDNY/USMA at West Point's Combating Terrorism Program.

Day 2 – Breakout Sessions – Contemporary Issues

Alternative Building Materials



SPEAKER Carl F. Baldassarra. P.E. MBA, FSFPE Principal/Manager, Fire Protection Wiss, Janney, Elstner Associates, Inc. CBalsassarra@wje.com

Carl Baldassarra is a nationally recognized expert in fire protection engineering, including fire/life safety analysis, egress design, fire protection system design and analysis, code consultation, loss investigations, and related services for a wide range of facilities and systems. Over his career, he has managed operations, led project teams, and participated in numerous design, consulting, and research projects. Mr. Baldassarra is also a recognized authority for his development of innovative design solutions using performance-based principles for a wide range of facilities to meet clients' design objectives. His experience includes loss prevention surveys, on-site construction period services, litigation support, water supply analysis, and expert testimony in virtually all types of building occupancies.

Prior to joining WJE, Mr. Baldassarra was executive vice president of Rolf Jensen & Associates, where he managed the firm's western region. His experience also spans thirty-five years at Schirmer (Aon) Engineering Corporation, where he served as president of the firm for seventeen years, as well as in various other roles.

Carl graduated from the Illinois Institute of Technology with a B.Sc. in Fire Protection and Safety Engineering in 1974 and graduated from the Lake Forest Graduate School of Management with a Master of Business Administration degree in 2007. He is a licensed Professional Engineer in Arizona, Illinois, Kansas. New Mexico and Wisconsin.

Day 2 – Main Session

The Ammonium Nitrate Fertilizer Plant Explosion in the City of West, Texas - an Illustration of the Need for the NFPA Fire & Life Safety Ecosystem



SPEAKER Chief Chris M. Connealy, M.Sc., EFO, CFO Senior Director, Emergency Services Williamson County, Texas (former Texas State Fire Marshal) chris.connealy@wilco.org

Chris Connealy has served in public safety for 44 years. He began his fire service career in 1978 with the Houston (TX) Fire Department, where he rose through the ranks to Fire Chief. Upon his retirement from HFD, Chief Connealy went on to serve as Chief of the Cedar Park (TX) Fire Department, the State Fire Marshal of Texas, and now serves as the Director of Emergency Services for Williamson County, Texas.

On April 17, 2013, while Chief Connealy was Texas State Fire Marshal, the City of West, Texas experienced a catastrophic explosion of an ammonium nitrate fertilizer plant. The explosion killed ten first responders and civilians, and caused damage in a 37 square block area, destroying numerous homes, and causing extensive damage to an apartment complex, an intermediate school,

nearby railroad facilities and community infrastructure. The local fire department's equipment was totally destroyed. A crater 93 feet wide was created at the seat of the blast.

In response to the disaster, the Texas State Fire Marshal's Office (SFMO) played a critical role in the post-incident investigation, including investigating the Line of Duty Deaths of fire department first responders. In the aftermath of the disaster, the SFMO was tasked by the Homeland Security and Public Safety Committee of the Texas House of Representatives to identify storage facilities in Texas with a large amount of ammonium nitrate and ultimately create a Texas outreach program to educate all counties in Texas with similar facilities.

In recognition of his significant contributions to the State of Texas in the aftermath of the West, Texas explosion, Fire Marshal Connealy was named a 2014 Public Official of the Year by Governing magazine. He also received the 2014 National Association of State Fire Marshals' President's Award for his efforts to improve fire investigations, his efforts to prevent another West, Texas incident, and for developing a comprehensive survey document for other Fire Marshal's offices to use when conducting comparative analysis.

In this presentation, Chris Connealy will review the lessons-learned from the City of West, Texas disaster and relate them to the aims and benefits of the NFPA Fire & Life Safety Ecosystem.

Chief Connealy earned an AAS degree in Fire Protection Technology from San Jacinto College (TX) in 1995, a BA degree with emphasis in Fire Administration from Western Illinois University in 1996, and a M.Sc. degree in Executive Fire Service Leadership from Grand Canyon University (AZ) in 2002. He is a 2000 graduate of the National Fire Academy's Executive Fire Officer program and a 2002 graduate of Harvard University's Program for Senior Executives in State and Local Government.

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Our thanks to the sponsors of this symposium

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