SFPE Fire Safety Conference & Expo on PERFORMANCE-BASED DESIGN
17-19 APRIL 2024 | COPENHAGEN, DENMARK

CONFERENCE VENUE: COPENHAGEN MARRIOTT HOTEL, KALVEBOD BRYGGE 5, 1560 KØBENHAVN, DENMARK

15 APRIL 2024 - PRE-CONFERENCE PROGRAMMING

	Registration Hours 8:00 – 12:00	
09:00 - 17:00	**Professional Development Seminars** (Separate Registration Required): 1) Substantiating the Suitability of a Fire Model – Day 1 of 2 (Instructor: Bryan Klein) 2) Introduction to Fire Risk Assessment – Day 1 of 2 (Instructor: doc. Ing. Vladimir Mozer, PhD) **REGISTER BY 12 MARCH**	

16 APRIL 2024 - PRE-CONFERENCE PROGRAMMING

	Registration Hours 10:00 – 19:00	
09:00 - 17:00	**Professional Development Seminars** (Separate Registration Required): 1) Substantiating the Suitability of a Fire Model – Day 2 of 2 2) Introduction to Fire Risk Assessment – Day 2 of 2	
11:30 - 16:00	**DBI Laboratory Tour and Fire Test (REGISTER BY 31 MARCH)** Join us for an exclusive experience at DBI, where attendees will explore the state-of-the-art test facilities. Learn more about DBI's latest research projects and discover how they drive advancements in our field. As a highlight, witness a live fire test, offering a dynamic demonstration of the innovative high-pressure water mist spray bar from Danfoss Fire Safety. Registration Required. Limited Capacity.	
17:30 - 18:30	**SFPE Chapter Leadership Forum** Chapter Leadership Forum is designed for current and prospective chapter leaders who want to improve their knowledge, skills and tactics related to managing all aspects of chapter operations	
18:30 - 19:30	**Welcome Reception (All Invited)**	

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17 APRIL 2024 – DAY 1

	Registration Hours 8:00 – 17:00	**Exhibit Hours** 10:00 – 15:25 & 17:05 – 18:05
09:00 - 09:15	**Welcome Remarks** General Session Bob Libby, PE, SFPE President, & Chris Jelenewicz, PE, FSFPE, CEO	
09:15 - 09:45	**The Fire Safety Engineer of the Future is a Great Communicator** Keynote In an era marked by rapid innovation and a heightened commitment to sustainable development, envisioning the Fire Safety Engineer (FSE) of the future becomes a complex yet fascinating endeavor. Let's try to brainstorm what the Fire Safety Engineer of the future will look like. In an uncertain future and unprecedented growth, can we even define what traits will let the FSEs of the future succeed? How will they accomplish the mission of delivering fire safety for people, societies, and the environment? The FSE of tomorrow must be more than just a technical expert, adept in recalling code clauses and adopting acceptable solutions. In a world where everything is innovative, cutting-edge, and world-first, the Fire Safety Engineer must be an innovator in the definition of fire-safe solutions. To implement them in the complex world of the built environment, the FSE must be an integrator. In this, one cannot succeed alone. Thus, the FSE of the future will always be a collaborator. Possessing the unique ability to perceive "the fire layer" in scenarios and solutions that other stakeholders cannot comprehend, the future FSEs must be thinkers. Finally, they must be leaders and educators to make others follow their guidance. But above all, I believe the future Fire Safety Engineer must be a great communicator. One that actively listens, engages, and builds with others. One that turns data into action and convinces those around that the fire-safe solutions are the only way forward. One that does not prohibit or ban but understands the other's objectives and morphs them, guiding others in the most fire-safe way. Let's think about the Fire Safety Engineer of the future together. Who we could become and what we could achieve. Wojciech Węgrzyński, PhD FSE, Professor, Instytut Techniki Budowlanej	
09:45 - 10:15	**The Ongoing Contribution of SFPE to Implementing Performance-based Design** General Session There is an increasing global awareness of, and need for, performance-based design (PBD) in the built environment, and no more so than in the international field of fire engineering. Much of this is driven by the introduction of novel, sustainable building materials and systems such as mass timber, which fall well outside the current prescriptive building regimes. One of the keys to the successful implementation of PBD is a framework that can be consistently and universally applied. At the previous two SFPE PBD Conference, Dr Greg Baker has given presentations on the ongoing work of SFPE International to support and contribute to the successful implementation of PBD in the global fire engineering community. Underpinning these efforts by the Society, is an SFPE Standards-Making Committee which is developing a new SFPE Standard on PBD. In this presentation, Dr Baker will provide an overview of the background to the Standard, a summary of the committee's work to date in developing the new Standard, as well as illustrations of how the new Standard may be able to be applied in practice. Greg Baker, PhD, CPEng, FIEAust, PMSFPE, Fire Research Group, New Zealand & Performance-based Design Subcommittee Chair of SFPE Research, Tools & Methods (RTM) Standing Committee	
10:15 - 10:45	**Morning Networking Break**	
10:45 - 11:45	**Engineering The Future: Navigating New Regulatory Requirements - A Panel Discussion** General Session In this thought-provoking panel discussion, experts in engineering come together to explore the unique challenges and opportunities presented by evolving regulations in the engineering industry world-wide. Join us as we delve into the strategies, innovations, and best practices that engineers and organizations can employ to navigate the complex landscape of new regulatory requirements.	

	Moderated by Brian Ashe, CEng Invited Panelists: Brian Meacham, PhD, PE, CEng, EUR Ing, FIFireE, FSPFE; Axel Mossberg, PhD, Karl Wallasch, Dipl.-Ing. CEng MIFire ; Kieran Ager, MSc, P.Eng, CP, CEng; Peter Johnson, MSc (FPE), CPEng, APEC Engineer, Int PE (Aus), FSFPE and Martin Feeney, FPE	
11:45 - 12:00	**A Performance Based Design Regulation: The Italian Fire Safety Code** Sponsored Session Piergiacomo Cancelliere, PhD, FPE, Provincial Fire Brigade Commander & Antonio Terio, Global Category Manager, Danfoss	
12:00 - 13:15	**Networking Lunch**	
	PERFORMANCE-BASEED DESIGN FRAMEWORK	DIGITALIZATION / FIRE DYNAMICS
13:15 - 13:40	**Track A** Abstract Sessions - Track A **Reimagining the ICC Performance Code** *Beth Tubbs PE, FSFPE, ICC, USA & Brian Meacham, PhD, PE, CEng, EUR Ing, FIFireE, FSPFE, Crux Consulting, USA*	**Track B** Abstract Sessions - Track B **AI-driven Fire Fields Prediction and Safety Design Analysis** *Yanfu Zeng, PhD Candidate, The Hong Kong Polytechnic University, Hong Kong*
13:40 - 14:05	**Track A** Abstract Sessions - Track A **Applying Performance-Based Approaches to Prescriptive Design Requirements** *Steve Gwynne PhD, GHD, UK & Lund University, Sweden*	**Track B** Abstract Sessions - Track B **Demonstrating the use of Artificial Intelligence for the prediction of facade fire tests** *Matthew Bonner PhD, Trigon Fire Safety Ltd & Imperial College London, UK*
14:05 - 14:30	**Track A** Abstract Sessions - Track A **An Australian Regulatory Response to the Grenfell Building Fire – Some Impacts on Performance Based Fire Safety Engineering** *Peter Johnson, BSc, MSc (FPE), CPEng, APEC Engineer, Int PE (Aus), FSFPE, Arup, Australia*	**Track B** Abstract Sessions - Track B 2023 Jack Bono Award for Engineering Communication: **A Study on Evacuation Behavior in Physical and Virtual Reality Experiments** Silvia Arias, PhD, Lund University *SFPE Foundation-supported presentation*
14:30 - 14:55	**Track A** Abstract Sessions - Track A **Performance-Based Design for the WUI Microscale: Guideline and Applications** *Pascale Vacca, PhD, Universitat Politècninca de Catalunya, Spain*	**Track B** Abstract Sessions - Track B **Comparison of strategies for supplying compensating air on horizontal escape routes during a fire based on full-scale tests.** *Grzegorz Krajewski, PhD, Instytut Techniki Budowlanej, Warszawa, Poland*
14:55 - 15:25	**Afternoon Networking Break**	
	TIMBER STRUCTURES	EVACUATION
15:25 - 15:50	**Track A** Abstract Sessions - Track A **Notre Dame as a Case-Study for Performance-Based Fire Modelling in Timber Heritage Structures**	**Track B** Abstract Sessions - Track B **Increasing the Maximum Egress Distance for a Generic Semiconductor Fabrication Facility Using a Performance-Based Design Approach**

	Wulan Shofa Aisyah MSc, University College London, UK	*Michelle Peatross, MS, PE, Jensen Hughes, USA*
15:50 - 16:15	**Track A** Abstract Sessions - Track A **Assessing Fire Load Contribution from Exposed Timber Surfaces in Fire Safety Design** *Daniel Brandon, PhD, MSc, Senior Research Scientist, RISE Research Institutes of Sweden*	**Track B** Abstract Sessions - Track B **Safe Evacuation for All – Fire Safety Equity at Scale: Enabling Lift Evacuation in Existing Residential Buildings** *Tony Park, MEFE, Arup, UK*
16:15 - 16:40	**Track A** Abstract Sessions - Track A **External Fire Spread Considerations for Timber Buildings** *Rory Turnbull, MEng (Hons) AIFireE & Frederik Moller Poulsen, MEng (Hons), AIFireE, Arup, UK*	**Track B** Abstract Sessions - Track B **Incorporating Evacuation Elevators in Buildings through Standardization – The Swedish approach** *Axel Mossberg, PhD, Bengt Dahlgren Fire Research, Sweden*
16:40 - 17:05	**Track A** Abstract Sessions - Track A **From 43 Challenges with Wooden Buildings to a Round Robin-study about Designing Wooden Buildings and Two Guidelines** *Caroline Bernelius Cronsioe, MSc, Briab & Pär Hansson, BSc, FSD Goteborg, Sweden*	**Track B** Abstract Sessions - Track B **Post-Restriction COVID Influences on the Pedestrian Crowd Egress of Stadiums: Data Collection and Validation** *Tim Young, MASc, & John Gales, PhD, York University, Canada*
17:05 - 18:05	**Networking Reception - SFPE Women in Fire Protection Engineering (All Invited)**	

18 APRIL 2024 – DAY 2

	Registration Hours 8:00 – 17:00	**Exhibit Hours** 10:00 – 15:45
08:00 – 08:55	**Product Showcase Demonstrations** Sponsored Session The Product Showcase Demonstrations aim to introduce the latest products and technologies from our industry partners and to highlight their market need as relevant to the fire protection and safety community. The product showcase presentations are expected to last approximately 15 minutes, including time for demonstrations, presentations, and Q&A. ROCKWOOL SYMETRI ADDNODE GROUP	
09:00 – 09:05	**Welcome to Day 2** General Session	
09:05 – 09:30	**Top Abstract Presentation** General Session **A Cross Disciplinary Approach for Improving Wildfire Evacuation Planning** *Amelia Pludow, MA & Darlene Rini, PE, Jensen Hughes; Grace Carsky and Matt Braughton, Kittelson & Associates, USA*	
09:30 – 10:00	**A Review of Case Studies – 1996 – 2022** General Session The presentation will review, compare, and contrast conference case studies from the first conference in 1996 through the 2022 conference. Morgan Hurley, PE, FSFPE, Jensen Hughes	
10:00 – 10:15	**Case Study Introduction** Case Studies Session TOPIC 1: Worker Housing - The objective of the case study is to conduct a performance-based fire safety strategy analysis for a proposed "pod" style high density housing project. TOPIC 2: Skovtårnet (Forest Tower) - The objective of the case study is to conduct a performance-based fire safety strategy analysis for a proposed extension of Skovtårnet (Forest Tower) project. TOPIC 3: Co-living/working Facility - The objective of the case study is to conduct a performance-based fire safety strategy analysis for a proposed Co-living Facility project. The building will be designed as a multi-use and multi-purpose building to include residential spaces, office/work spaces, and retail areas surrounding a large gaming facility. Craig Hofmeister, PE, FSFPE, LEED AP	
10:15 – 10:45	**Morning Networking Break**	
	CASE STUDY PRESENTATIONS: Worker Housing	
10:45 – 11:15	**Case Study Presentation (SFPE New Zealand Chapter Team)** Case Studies Session Presenters: Martin Feeney, FPE, Sherry Wang, MEngSt(Fire), ME & BE (Mech), LEED AP BD+C, MEngNZ	
11:15 – 11:45	**Case Study Presentation (SFPE Japan Chapter Team)** Case Studies Session Presenters: Yoshikazu Minegishi, Moyu Seike, Yuto Koike, Ken-ichi Takayama , Mizuho Fujimoto	
11:45 – 12:30	**Panel Discussion / Q & A** Case Studies Session	
12:30 – 13:30	**Networking Lunch**	

	CASE STUDY PRESENTATIONS: Skovtårnet (Forest Tower)
13:30 – 14:00	**Case Study Presentation (Switzerland Team)** Case Studies Session Presenters: Prof. Christoph Renfer, Jakob Studhalter, M.Eng FE UC, Gianluca De Sanctis, M.Sc., Dr. Sc ETH, Abdulhameed Morsy, PMP
14:00 – 14:30	**Case Study Presentation (SFPE UK Chapter)** Case Studies Session Presenters: Simon Santamaria, PhD; Georgina Williams, PhD, MSc, BEng (Hons) AIFireE
14:30 – 15:15	**Panel Discussion / Q & A** Case Studies Session
15:15 – 15:45	**Afternoon Networking Break**
15:45 – 16:00	**Performance of Fire Detection Systems on Electric Vehicle Fires in Car Parks** Sponsored Session Gerd Hülsen, Dip.-Ing., Global Head of Fire Safety Application Engineering at Siemens Smart Infrastructure SIEMENS
16:00 – 17:00	**Fire Safety in Single Stair Tall Buildings – A Panel Discussion** General Session This panel discussion is dedicated to exploring the critical aspects of fire safety in single stair tall buildings. The panel will discuss the importance of adhering to local fire safety regulations and codes for single stair tall buildings and how to ensure compliance. Various fire suppression systems, that can be integrated into single stair tall buildings to mitigate fire risks will also be discussed. Each panelist will provide unique insights into the challenges and solutions related to fire safety in single stair tall buildings. The discussion will encourage audience questions and participation, making it an interactive session where attendees can gain a deeper understanding of fire safety in single stair tall buildings. Moderated by William Koffel, PE, FSFPE Invited Panelists: Brian Ashe, CEng NER MIFireE MSFPE MSaRS, Richard Rankin, Sawsan Dahham, Conrad Speckert, BAS, MArch, Yoshikazu Minegishi
18:00 – 20:00	**Offsite Networking Reception (All Invited)**

19 APRIL 2024 – DAY 3

	Registration Hours 8:00 – 15:15	**Exhibit Hours** 10:00 – 13:05
08:00 – 08:55	**Product Showcase Demonstrations** Sponsored Session	
09:00 - 09:05	**Welcome to Day 3** General Session	
09:05 – 09:35	**The Pivotal Role of Digitalization for a Safe and Sustainable Built Environment** General Session This presentation will discuss the critical role of digitalization in the construction industry, focusing on improving safety and sustainability. Led by the Deputy Manager of the Smart Built Environment strategic innovation program, this talk will explore how adoption of digital technologies, like BIM, AI, and IoT, are transforming the way we approach fire safety and the development of the built environment. With a program portfolio of over 250 projects, including advancements in sensor technology and how AI may affect the business models of consultants, we'll uncover the direct and indirect impacts of digitalization on fire safety engineering. We'll also discuss the upcoming changes in national and EU policy, such as BIM requirements, Digital Product Passes in Europe, and how these developments may streamline compliance and impact the work of engineers. This presentation aims to provide a concise overview of the importance of digitalization in the built environment, offering insights into its benefits for safety, sustainability, and the future of fire safety engineering. Michael Strömgren, Deputy Program Manager, Smart Built Environment	
	CASE STUDY PRESENTATIONS: Co-Living/Working Facility	
09:35 - 10:05	**Case Study Presentation (SFPE IMFSE Student Chapter)** Case Studies Session Deonisius Aprisa, Annachiara Nardone, Vanessa Valdeabella, Farith Hinojosa Coca, Joshua Tech	
10:05 - 10:30	**Panel Discussion / Q & A** Case Studies Session	
10:30 - 11:00	**Morning Networking Break**	
11:00 - 12:00	**Implementation of Fire Safety Engineering approach in Europe - A Panel Discussion** General Session This panel discussion is dedicated to reviewing the JRC Technical Report titled “The status and needs for implementation of Fire Safety Engineering approach in Europe” that presented the results of a survey coordinated by the European Commission. The survey aimed to collect and assess the information necessary to facilitate the provision of guidance to the EU/EFTA MS for a wider application of the fire safety engineering approach and its possible incorporation in the national regulatory framework and/or national practices. The discussion will encourage audience questions and participation. Moderated by Dr. Wojciech Węgrzyński and Jimmy Jonsson Invited Panelists: Francesca Sciarretta, PhD; Paulo Ramos; Kees Both, PhD, MSc	
12:00 - 13:05	**Networking Lunch**	
	PERFORMANCE-BASED DESIGN APPLICATIONS	SUSTAINABLE DESIGN
13:05 - 13:30	**Track A** Abstract Sessions - Track A **Evaluation of Combustible Sunshades on the Façade of Trae in Arhus** *Karlis Livkiss PhD, Danish Institute of Fire and Security Technology, Denmark*	**Track B** Abstract Sessions - Track B **Challenges and Opportunities for Reuse of Products and Materials with Fire Safety Requirements - An Overview of Regulations and Practical Examples**

		Margaret McNamee, Professor, Lund University & Cecilia Wetterqvist, Bengt Dahlgren, Sweden
13:30 - 13:55	**Track A** Abstract Sessions - Track A **Performance-based Fire Safety Design Using High-pressure Water Mist Systems in Tunnels** *Lei Jiang PhD, RISE Fire Research, Norway & Henrik Bygbjerg, M.Sc.*	**Track B** Abstract Sessions - Track B **The Rise of Modern Methods of Construction: Modernize without Compromise** *Mario Lara Ledermann, MSc, Halliwell Fire Research, UK*
13:55 - 14:20	**Track A** Abstract Sessions - Track A **Solutions for Upgrading the Fire Resistance of Architectural Heritage Escape Route Timber Doors** *Anne-Marit Haukø, M.Sc., SINTEF, Norway*	**Track B** Abstract Sessions - Track B **Fire as a Factor in Life Cycle Assessment – How does the Risk of Fire Affect the Climate Impact of Buildings?** *Cecilia Wetterqvist, Bsc, MSc & Axel Mossberg, PhD, Bengt Dahlgren Fire Research, Mölndal, Sweden*
14:20 - 14:45	**Track A** Abstract Sessions - Track A **Fire Safety and Evacuation Modelling in the Design of the New Aarhus Stadium: A Case Study in Performance-Based Design** *Mohammed Tanveer Hasan MSc (IMFSE), AIFireE & Farrokh Azad, AIFireE, Sweco,UK*	**Track B** Abstract Sessions - Track B **Development of a 'Proof-of-concept' Framework for Assessing Degree of Sustainability and Fire Resilience in the Built Environment (SAFR-BE)** *Margaret McNamee, Professor & Erik Kimblad, Lund University, Sweden*
14:45 - 15:15	**Afternoon Networking Break**	
	BATTERY FIRE HAZARDS	RESEARCH & INNOVATION
15:15 - 15:40	**Track A** Abstract Sessions - Track A **Assessment of Fire Safety Design Solutions and Best Practice for Battery Rooms in Buildings in Norway** *Brynhild Garberg Olso, M.Sc., Senior Research Scientist, SINTEF, Norway*	**Track B** Abstract Sessions - Track B **Contextualizing Shelter and Occupant Vulnerability Intersections to Better Characterize Fire Risk** *Brian Meacham, Ph.D., P.E., C.Eng., EUR ING, FIFE, FSFPE, Meacham Associates, USA & Sandra Vaiciulyte PhD, Research Associate, Mexico*
15:40 - 16:05	**Track A** Abstract Sessions - Track A **Quantification of Fire Hazards during the Thermal Runaway and Flaming of Lithium-ion Batteries** *Sergio Zarate Orrego, PhD, The University of Queensland, Brisbane, Australia*	**Track B** Abstract Sessions - Track B **The FSRI Materials and Products Database: A Powerful Resource for Materials Modeling** *Mark McKinnon PhD, PE, UL's Fire Safety Research Institute, USA*
16:05 - 16:30	**Track A** Abstract Sessions - Track A **Design Fire Scenarios for Hazard Assessment of Modern Passenger Vehicles** *Jonathan Hodges, PhD, Jensen Hughes, USA*	**Track B** Abstract Sessions - Track B **Fire Departments' On-site Analysis of More than 1,200 Fires in Germany** *Claudius Hammann Dr.-Ing. & Björn Maiworm, Dipl.-Phys., City of Munich - Munich Fire Department, Technical University of Munich, Germany*

16:30 - 16:55	**Track A** Abstract Sessions - Track A **Performance of Detection and Suppression Systems on Electric Vehicle Fires in Car Parks** *Elena Funk, M.Sc., Danish Institute of Fire and Security Technology*	**Track B** Abstract Sessions - Track B **Application of Holistic Quantitative Risk Assessment - A Case Study** *Sigurjon Ingolfsson, Arup, Denmark & Nate Lobel, CEng*
16:55 - 17:00	**Conference Wrap Up** General Session	**Conference Wrap Up** General Session