

Programme

MONDAY

08.00 Registration
9.00 OPENING

9.15 PLENARY SESSION

10.30	Discussion	10.30	Discussion	10.30	Discussion
10.40	Break	10.40	Break	10.40	Break
A.	NEW TEST METHODS Chair: Serge Bourbigot, ENSCL	B.	FACADES Chair: Anja Hofmann, BAM	C.	DETECTION & SUPPRESSION Chair: Sergey Dorofeev, FM Global
11.10	Ignition of Pre-Heated Flammable Vapor Clouds in Obstructed Environments: Flame Propagation and Flame Arrester Performance Joshua Dinaburg & A Kapahi , <i>S Lakshminpathy, Jensen Hughes, USA</i>	11.10	An Holistic Approach for Fire Safety Requirements and Design of Facade Systems Patrick van Hees , <i>Lund University, Sweden, M Stromgren, Lund University/BRIAB, Sweden & B Meacham, Meacham Associates, USA</i>	11.10	The Performance of Multi-Sensor Detectors to Fire and False Alarm Sources Raman Chagger , <i>BRE, UK</i>
11.30	Development of New Intermediate-Scale Box Test on Sandwich Panel Products Pertaining to the Correlation with ISO 13784-1 Room Test Hideki Yoshioka , <i>NILIM, T Noguchi, T Ando, The University of Tokyo, K Kobayashi, M Kanematsu, Tokyo University of Science, S Pareek, Nihon University & T Hayakawa, TSV, Japan</i>	11.30	Fire Risk Assessment of High Rise Buildings With Combustible Exterior Wall Assemblies: NFPA's EFFECT™@Tool Birgitte Messerschmidt , <i>NFPA & Susan Lamont, Arup, USA</i>	11.30	Relative Roles of Aqueous Film Formation and Foam Degradation on Fire Suppression by Foams Containing Fluorosurfactants Katherine Hinnant , <i>S Giles, A Snow, R Ananth, U.S. Naval Research Laboratory & M Button, George Washington University, USA</i>
11.50	Evaluation of Mitigation Strategies for Propagating Thermal Runaway in Lithium Ion Battery Packs Christopher Lee , <i>A Said, S Stolarov, University of Maryland, USA</i>	11.50	Facades: What are the Requirements in the USA? Marcelo Hirschler , <i>GBH International, USA</i>	11.50	Why Equal Flow from Different K-Factor Sprinklers Does Not Always Offer Equivalent Protection? Yogish Gopala , <i>S D'Aniello & S Sienkiewicz, FM Global, USA</i>
12.10	Novel Test Bench for Extreme Fire Scenario: Experimental and Numerical Modeling Studies Roland Adanmenou , <i>F Samyn, M Jimenez, S Duquesne & S Bourbigot, ENSCL, University of Lille, France</i>	12.10	Changes in Facade Regulations A Hofmann , <i>BAM, Germany & Alex Webb, CSIRO, Australia</i>	12.10	Full-Scale Fire Tests of High-Pressure Water Mist used as a Fire Barrier Lasse Sorensen Laustsen , <i>EKJ Consulting Company AS, Denmark, B Paulsen Husted, Lund University, Sweden, L Schiott Sorensen, Technical University of Denmark</i>
12.30	Discussion		Discussion		Discussion
12.50	Lunch				
A.	MASS TIMBER Chair: Marc Janssens, SwRI	B.	FACADES Chair: Patrick van Hees, Lund University	C.	SUPPRESSION Chair: Chris Jelenevicz, SFPE
14.00	Enclosure Fire Model for Mass Timber Construction – Benchmarking with a Kinetic Wood Pyrolysis Submodel Colleen Wade , <i>BRANZ Ltd, New Zealand, D Hopkin & Michael Spearpoint, OFR Consultants, UK, J Su, NRCC, Canada & C Fleischmann, University of Canterbury, New Zealand</i>	14.00	Fire Performance Evaluation of Cladding Wall Assemblies Using the 16-Ft High Parallel Panel Test Method of ANSI/FM 4880 Gaurav Agarwal , Y Wang & S Dorofeev , <i>FM Global, Research Division, USA</i>	14.00	Experimental Investigation of Human Tenability and Sprinkler Protection in Hospital Room Fires Simo Hostikka , <i>E Veikkanen, Aalto University, T Hakkarainen, & T Kajolinna, VTT Technical Research Centre of Finland, Finland</i>
14.20	Development of a Fire Performance Assessment Method for Qualifying Cross-Laminated Timber Adhesives Marc Janssens & A Joyce , <i>SwRI, USA</i>	14.20	European Approach to Assess the Fire Performance of Facades J Anderson , <i>L Bostrom, RISE Research Institutes of Sweden, R Chiva, E Guillaume, EFECTIS France, S Colwell, BRE, UK, Anja Hofmann, BAM, Germany & P Toth, EMI LLC, Hungary</i>	14.20	An Experimental Study of SMART Sprinkler Protection of High Rack Storage with Reduced Water Demand Stanislav Kostka , Y Gopala , Y Xin & S Dorofeev , <i>FM Global, USA</i>
14.40	Enclosure Fire Dynamics with a Combustible Ceiling Robert McNamee , <i>Brandskyddslaget, Sweden, J Zehfuss, Technische Universitaet Braunschweig (iBMB), Germany, A Bartlett, L. Bisby, University of Edinburgh, UK & M Heidari, F Robert, CERIB Fire Testing Centre, France</i>	14.40	A New Test Method to Determine the Fire Behaviour of Facades With ETIC System Piergiacomo Cancelliere , <i>S Shiaroli, Ministry of Interior, Italian National Fire Rescue and Service, S Sassi, M Madeddu, P Canzani, FSC Engineering Milano, A Lucchini, A Stefanazzi, Politecnico di Milano, S Messa, E Anselmi, LS-Fire Testing Institute Como, A Villotti, Italian South Tyrol Fire Service, Italy</i>	14.40	Impact of Fuel Packaging Arrangement on Fire Growth and Suppression in Rack Storage of Cartoned Commodities James White , Y Xin , <i>FM Global, Research Division, USA</i>
15.00	Thermo-Mechanical Behaviour of Cross-Laminated Timber Slabs Under Standard and Natural Fires Jean-Christophe Mindeguia , <i>I2M, University of Bordeaux, France, S Mohaine, F Robert, CERIB, France, L Bisby, A Bartlett, University of Edinburgh, UK & R Jansson McNamee, Brandskyddslaget, Sweden</i>	15.00	Modelling Fire Tests of Facade Systems Incorporating Aluminium Composite Material-Based Claddings Virginie Drean , E Guillaume , B Girardin , <i>EFECTIS, France, T Fateh, EFECTIS UK-Ireland/ Ulster University, FireSERT, UK</i>	15.00	Cooling of a Smoke Layer by a Sprinkler Spray: Validation of the FDS CFD Model David den Boer , <i>J van Oerle, Peutz & N Tenbült, Eindhoven University of Technology, Netherlands</i>

15.20	Fire Performance of Moment-Resisting Concealed Steel-Glulam Frame Connections Christian Gonzalez Crespo & G Hadjisophocleous, Carleton University & O Salem, Lakehead University, Canada	15.20	Modelling a Facade Fire Using Multiscale Experimental-Numerical Simulation Method Eric Guillaume, V Drean, B Girardin, F Benameur, M Koohkan, EFECTIS France & T Fateh, EFECTIS UK-Ireland/ Ulster University, FireSert, UK	15.20	The Impact of Automatic Smoke and Heat Vents on Sprinkler System Performance Alex Krisman, K Meredith & Y Wang, FM Global, USA
15.40	Discussion	15.40	Discussion	15.40	Discussion
16.10	Break	16.10	Break	16.10	Break
A	MEASUREMENT CHALLENGES Chair: Bjorn Sundstrom, RISE	B	HUMAN BEHAVIOUR IN FIRE Chair: Karen Boyce, University of Ulster	C	FIRE PREVENTION & SAFETY Chair: Birgitte Messerschmidt, NFPA
16.30	Time-Resolved 3D Temperature/Displacement Measurements for Investigating the Fire Behaviour of Composite Materials Gillian Leplat, Y Le Sant, P Reulet & T Batmalle, ONERA – The French Aerospace Lab, France	16.30	Influence of Dispositional and Situational Factors on Human Perceptions of Fire Risk J Bonny, Morgan State University, & Isaac Leventon, NIST, Fire Research Division, USA	16.30	The Fire & Life Safety Ecosystem – A Holistic Approach to Fire Safety Birgitte Messerschmidt, NFPA, USA
16.50	Application of High Emissivity Gauge Heat Flux Data to Low Emissivity Surfaces Christian Rippe & B Lattimer, Jensen Hughes, USA	16.50	The Older Adult – Associated Fire Risks and Current Challenges for the Development of Future Fire Safety Intervention Strategies Peter Cassidy, N McConnell & K Boyce, Ulster University, UK	16.50	The Information Campaign “Action Against Fire” – Did It Work? Lotta Alm, Lund University/BRIAB, Sweden
17.10	Small-scale Test on Thickness of Ceiling Jet in Tunnel Fire under Natural Ventilation Yuki Yamauchi, Railway Technical Research Institute/ Yokohama National University, S Saito, Railway Technical Research Institute & Y Oka, Yokohama National University, Japan	17.10	New Design Approach for Fire Safe Hospital Wards Paul Hoondert, B Peters, DGMR Consulting Engineers, The Netherlands	17.10	Arson in Swedish Schools – A Societal Problem on the Rise N Johansson, M McNamee & Patrick van Hees, Lund University, Sweden
17.30	Discussion	17.30	Discussion	17.30	Discussion
17.50	POSTER SESSION A				
19.00	Social Evening – Founders Building				
TUESDAY					
A.	PYROLYSIS MODELLING Chair: Rich Lyon, FAA	B.	HUMAN BEHAVIOUR IN FIRE Chair: Enrico Ronchi, Lund University	C.	FSE Chair: Brian Lattimer, Jensen Hughes
8.40	Automated Fitting of Thermogravimetric Analysis Data Morgan Bruns, Virginia Military Institute & I Leventon, NIST, USA	8.40	Developing a Notation for Mapping Evacuee Response Steven Gwynne, Movement Strategies, UK, J Ouellette, Federal Government of Canada, R Brown, Marine Institute, Memorial University of Newfoundland & M Kinatader, National Research Council Canada, Canada	8.40	Research Needs for the Fire Safety Engineering Profession: The SFPE Roadmap Chris Jelenewicz, SFPE, USA
9.00	Thermal Decomposition of Vegetative Fuels Isaac Leventon, NIST & M Bruns, Virginia Military Institute, USA	9.00	Towards Enhancing Behavioural Realism in Virtual Reality Fire Evacuation Experiments Silvia Arias, J Wahlqvist, E Ronchi, H Frantzych, Lund University & D Nilsson, University of Canterbury, New Zealand	9.00	Africa: The Next Frontier for Fire Safety Engineering? R Walls, Antonio Cicione, Stellenbosch University, South Africa & B Messerschmidt, K Almand, NFPA, USA
9.20	Material Burning Property Estimation Methodology and Validation Fengchang Yang, J Hodges, B Lattimer, Jensen Hughes,	9.20	Reproducibility of Route Choice for Evacuation in Virtual Reality Comparison with Evacuation Experiment in a Large Scale Underground Mall Yoshikazu Minegishi, Takenaka Corporation, K Kishida, NTT facilities, M Enomoto, Akeno Facility Resilience Institute & Y Hasemi, Waseda University, Japan	9.20	Ten Fundamental Principles on Defining and Expressing Thermal Exposure as Boundary Conditions In Fire Safety Engineering Ulf Wickstrom, Lulea University of Technology, Sweden, S Hunt, B Lattimer, C Beyler, Jensen Hughes, USA & J Barnett, Basic Expert Pty Ltd, Australia
9.40	Flame Heat Feedback Model for Simulation of Cone Calorimetry Conor McCoy, J Tilles, S Stolarov, University of Maryland, USA	9.40	A Method for Collecting Times and Routes on Stairs Focusing on Children in Schools Rosaria Ono & M Vargas Valentim, University of Sao Paulo, Brazil	9.40	Fire Safe Ventilation Concepts Without Excessive Use of Fire Insulation A Saeter Boe & C Sesseng, Ragni Fjellgaard Mikalsen, RISE Fire Research AS, Norway
10.00	Discussion	10.00	Discussion	10.00	Discussion
10.20	Break	10.20	Break	10.20	Break
A.	COMPARTMENT FIRES Chair: Anne Steen-Hansen, RISE	B.	HUMAN BEHAVIOUR IN FIRE Chair: Steve Gwynne, Movement Strategies	C.	FSE Yi Wang, FM Global
10.50	The Effects on Compartment Pressurisation and Risk of Smoke Spread from Airtight Facades Ulf Johansson, RED Fire Engineers, Australia	10.50	Fire Evacuation and Exit Design Strategies for Cultural Centres Rene Champagne, University of Waterloo, T Young, J Gales, York University, Canada & M Kinsey, Arup, China	10.50	A Round Robin of Fire Modelling for Performance Based Design Nils Johansson, Lund University, J Andersson, RISE Safety and Transport, R McNamee, Brandskyddslaget & C Pelo, Ramboll, Sweden
11.10	Compartment Fire Models U Wickstrom, Alexandra Bystrom, Lulea Technical University, Sweden	11.10	A Systems Engineering Approach to Analysing Emergency Evacuation Management in Large, Complex, Public Occupancy Buildings Georgia Bateman & A Majumdar, Imperial College London, UK	11.10	Assessment of a Novel Approach for the Representation of a Fire Smoke Plume with a Hot Air Plume Mohamed Beshir, D Rush, Y Wang, University of Edinburgh, UK, B Merci T Beji, Ghent University, Belgium,

11.30	Experimental and Numerical Study of Fire Event Involving Two Simultaneous Fire Sources in Confined and Ventilated Compartments Hugues Pretrel & W Plumecocq, IRSN, France	11.30	Hospital Evacuation Planning Tool for Assistance Devices (HEPTAD) Michael Joyce, P Lawrence & E Galea, University of Greenwich, UK	11.30	Fire Safety in Underground Power Plants - Design Challenges and Fire Safety Engineering in New Hydroelectric Power Plants in Iceland David Snorrason, S Kjaernested, Iceland Construction Authority, B Karlsson, University of Iceland, Iceland & N Johansson, Lund University, Sweden
11.50	Defining the Flame Extension under the Ceiling for Travelling Fires inside Very Large Compartments Mohammad Heidari, CERIB, France; Imperial College, P Kotsovinos, Arup, UK & G Rein, Imperial College, UK	11.50	Modeling Human Behavior in Emergency Stadium Fire Evacuations D Aucoin, T Young, John Gales, York University, Canada & M Kinsey, Arup, China	11.50	Identification and Characterization of Design Fires to be used in Performance-Based Fire Design of CERN Facilities Darko Perovic, DBI, Denmark P van Hees, D Madsen, J Pagels, W Malmberg, L Gren, Lund University, Sweden, O Rios & S La Mendola, CERN, Switzerland
12.10	Spatiotemporal Measurement of Light Extinction Coefficients in Compartment Fires Lukas Arnold, A Belt, Forschungszentrum Jülich & T Schultze, L Sichma, University Duisburg-Essen, Germany	12.10	Use of Statistical Approach on Stochastic Building Egress Simulations: Applied to Building Exodus and Pedestrian Dynamics Quentin Jullien, P Lardet, N Pinoteau, CSTB & J-L Paillat, A Thiry-Muller, LCPP, France	12.10	Application of Design Bridge Fires: Fire Performance Assessment of a Highway Bridge Jiayu Hu, University of Edinburgh/Mott MacDonald, UK, T Lewis, Mott MacDonald, UK, R Carvel, University of Edinburgh, UK, & A Usmani, The Hong Kong Polytechnic University, Hong Kong
12.30	Discussion	12.30	Discussion	12.30	Discussion
12.55	Lunch	12.55	Lunch	12.55	Lunch
A.	FIRE SPREAD MODELLING Chair: Eric Guillaume, EFECTIS	B.	HUMAN BEHAVIOUR IN FIRE Chair: Mattias Delin, Brandforsk	C.	FIRE RISK Chair: Brian Meacham, Meacham Associates
14.10	Assessment of an Engineering Method for The Contribution of Wood: Application to ISO 9705 with Different Linings Coverage Bertrand Girardin, M Duny, V Drean & G Auguin, Efectis, France	14.10	A Modelling Study on the Impact of Luggage and Airworthiness Certification on Aircraft Evacuation Alexander Johansson, Brandkonsultbyran Sverige, E Ronchi, Lund University, Sweden, S Gwynne, Movement Strategies, UK / NRCC & A Thompson, NRCC, Canada	14.10	An Holistic Framework for Risk-Informed Performance-Based Building Regulation Brian Meacham, Meacham Associates, USA
14.30	Testing for Knowledge: Maximising Information Obtained from Fire Tests by using Machine Learning Techniques Arjan Dexters, S Welch, G Jomaas, University of Edinburgh, UK, R Ripke Leisted, Technical University of Denmark & Ruben Van Coile, Ghent University, Belgium Van Coile, Ghent University, Belgium	14.30	Physical Exertion During Ascending Evacuation While Carrying Load A Velasco, A Halder, K Kuklane, Enrico Ronchi, Lund University, Sweden	14.30	The MaxEnt Method for Probabilistic Structural Fire Engineering – Performance of Multi-Modal Outputs Danny Hopkin, I Fu, OFR Consultants/University of Sheffield, UK, T Gemay, Johns Hopkins University, USA & N Elhami-Khorasani, University at Buffalo, Canada, R Van Coile, University of Ghent, Belgium
14.50	Quantifying Heat Transfer Level Probability for Local Fire Exposures Jonathan Hodges, S. Kraft, C Rippe, S Hunt & B Lattimer, Jensen Hughes, USA	14.50	Examination of Area Setting Around the Bottleneck Opening Natsuki Fujimoto, Y Ohmiya, J-i Yamaguchi, T Sano, M Tange, Tokyo University of Science, Japan	14.50	A Dynamic Probabilistic Fire Risk Model Incorporating Technical, Human and Organizational Risks for High-Rise Residential Buildings S Tan, D Weinert, P Joseph, Khalid Moinuddin, Victoria University, Melbourne, Australia
15.10	Towards a Simplified Fire Dynamic Simulator Model to Analyse Fire Spread Between Multiple Informal Settlement Dwellings Based on Full-Scale Experiments Antonio Cicione & R Walls, University of Stellenbosch, South Africa	15.10	Gaze Point in the Maze Set Evacuation Drills: Analysis of Eye Movement at the Indoor Wayfinding Young-Hoon Bae, J-Y Son, W-H Hong, Kyungpook National University, Y-C Kim, Hanyang University Erica & R-S Oh, J-H Choi, Pukyong National University, South Korea	15.10	AAMKS – Integrated Cloud-Based Application for Probabilistic Fire Risk Assessment Adam Krasuski, The Main School of Fire Service, Poland & S Hostikka, Aalto University, Finland
15.30	Discussion	15.30	Discussion	15.30	Discussion
15.50	Break	15.50	Break	15.50	Break
A.	LARGE SPACE & CFD MODELLING Chair: Colleen Wade, BRANZ	B.	HUMAN BEHAVIOUR IN FIRE Chair: Ed Galea, University of Greenwich?	C.	POOL FIRES Chair: Tuula Hakkarainen, VTT
16.20	Influence of Compartment Geometry on the Occurrence of Backdraught Chia Lung Wu, National Kaohsiung University of Science and Technology, Taiwan & R Carvel, University of Edinburgh, UK	16.20	Descending Evacuation on Staircases: How Accurate are Models in Representing Movement Without Merging? Tomonori Sano, Waseda University, Japan, E Ronchi, Y Wu, Lund University, Sweden, A Sekizawa, M Mizuno, S Park, Tokyo University of Science, K Fujii, National Research Institute of Fire and Disaster & H Kadokura, Tohoku Gakuin University, Japan	16.20	Fire Safety of Alcoholic Beverages in Retail Stores Tuula Hakkarainen, T Korhonen & J Vaari, VTT Technical Research Centre or Finland Ltd, Finland
16.40	An Analysis of a Method to Estimate the Effect of Wind on Natural Ventilation in Large Spaces Nils Johansson, Lund University, Sweden & B Karlsson, University of Iceland, Iceland	16.40	Evacuation in Institutions Serving People with Mobility Disabilities – Movement Speed Research Results Gyorgy Veres & J Rauscher, Obudai University, Hungary	16.40	Tank Cars Engulfed In Fires: Heat Flux Measurements Yoon Ko, C Lam, NRCC, Canada, A Luketa, D Lord, Sandia National Laboratories, USA & A Butko, C Kirney, M Spiess, Transport Canada
17.00	Performance of Two Subgrid Extinction Models in the Simulations of Highly Strained Flames Egor Kuznetsov, E Markus & A Snegirev, Peter the Great St.-Petersburg Polytechnic University, Russia	17.00	The Influence of Individual Impairment on Crowd Dynamics Paul Georg, A Hofmann, BAM & J Schumann, M Boltes, S Holl, Forschungszentrum Julich, Germany	17.00	Simulated Pool Fire Testing And Modeling of a Composite Metal Foam Afsaneh Rabiei, K Karimpour, North Carolina State University, Marc Janssens & D Basu SwRI, USA

17.20	CFD Modelling of Outdoor Smoke Dispersion with Agglomeration and Deposition Mechanisms using a Cutcell-Immersed Boundary Method Oriol Rios , S La Mendola, CERN, Switzerland R McDermott, G Forney, NIST, USA, M Vanella, NIST/ University of Maryland, USA & E Gissi, Corpo nazionale dei Vigili del Fuoco, Italy, J Floyd, Jensen Hughes, USA	17.20	Quantitative Risk Analysis and Numerical Investigation to Determine Critical Fire Scenarios in the Environment of Handicapped People Andrea Klippel , F Rabe, U Krause, Otto von Guericke University & A Hofmann, BAM, Germany	17.20	Numerically Solved Flame Spectra of an N-Heptane Pool Fire H Bordbar, Simo Hostikka , Aalto University, Finland, P Boulet, G Erez & G Parent, Universite de Lorraine/CNRS, France
17.40	Discussion	17.40		17.40	
18.00	Conference Close Day 2	18.00	Conference Close Day 2	18.00	Conference Close Day 2
19.00	Coaches depart for Conference Dinner				

WEDNESDAY

A.	FIRE INVESTIGATION Chair: Marcello Hirschl, GBH International	B.	LARGE OUTDOOR AND WILDLAND FIRES Chair: Sam Manzello, NIST	C.	TRANSPORTATION Chair: Margaret McNamee, Lund University
8.40	Fire Spread in Wind Turbine Generator Towers Paulius Tekorius , Teknical Associates, Inc, USA	8.40	A Critical Review of Wildfire Models and Simulation Tools for WUI Applications Islam Gomaa , M Adelzadeh, N Benichou, A Bwalya, M Sultan, J Singh, A Gaur & N Elsagan, National Research Council Canada & S Gwynne, Movement Strategies, UK	8.40	Temperature Assessment of Steel Members Subjected to Fire Generated by Alternative Fuel Vehicles : Experimental Tests C Thauvoye, Jean-Baptiste Tramoni , CTICM, F Hanus, ArcelorMittal Global R&D, B Pourtrain, BSPP, M Suzanne, A Thiry, LCPP, France
9.00	Evaluation of an Industrial Building Inferno - A Case Study C Sesseng, K Storesund, Anne Steen-Hansen , RISE Fire Research, Norway	9.00	Performance Analysis of a Self-Protection System for Vehicles In Case of WUI Fire Entrapment Elsa Pastor , C Mata, A Ageda, M Valero, & E Planas, CERTEC, Universitat Politecnica de Catalunya BarcelonaTech & J Sebastia, Wildfire Security S.L., Spain	9.00	Vehicle Fire Emissions with and Without Fire Service Intervention Margaret McNamee , M Runefors, Lund University & R McNamee, M Sandvik, Brandskyddslaget & F Amon, RISE Research Institutes of Sweden, Sweden
9.20	Warehouse Fires Ignited by Roof Mounted Photovoltaic Systems Giovanni Cocchi , Forensic Experts, Italy	9.20	Measurement of Drag Coefficients through Vegetation Canopy Ryan Falkenstein-Smith , K McGrattan, B Toman & M Fernandez, NIST, USA	9.20	Rail Car Interior Finish Heat Release Rate Requirements Brian Lattimer , C Luo, S Kraft & J Hodges, Jensen Hughes, USA
9.40	GPL Dispersion and Explosion Modelling Alberto Tinaburri , F Ponziani, Vigili del Fuoco, Italy	9.40	On the Use of Laboratory Scale Experiments to Better Understand Firebrand Generation from Large Outdoor Fires Samuel Mazello , NIST, USA & S Suzuki, NRIFD, Japan	9.40	Reducing Rail Car Floor Assembly Test Article Size for Fire Resistance Approval Testing Anil Kapahi , C Rippe, B Lattimer, Jensen Hughes, USA
10.00	Discussion	10.00	Discussion	10.00	Discussion
10.20	Break	10.20	Break	10.20	Break
A.	FLAME RETARDANTS Chair: Sergei Levchik, ICL-Group	B.	FURNITURE Chair: Chris Lukas, Dow Chemical Company	C.	FIRE RESISTANCE John Gales, York University
10.50	New Brominated Flame Retardants via Alkylation by Pentabromobenzyl Bromide and Tetrabromoxylene Dibromide M. Gelmont, M. Yuzefovitch, D. Yoffe , IMI Institute for R&D, Israel, E Eden, ICL-IP, Israel & Sergei Levchik , ICL-IP America, USA	10.50	Experimental Investigation into the Influence of Ignition Location on Flame Spread and Heat Release Rates Konrad Wilkens Flecknoe-Brown , Danish Institute of Fire and Security Technology, Denmark/ Lund University & P van Hees, Lund University, Sweden	10.50	Design Methods for Wood-Based I-Joists Exposed to Fire – State-of-the-Art and Improvements Katrin Nele Mager Tallinn University of Technology, Estonia & A Just, Tallin University of Technology, Estonia/RISE Research Institutes of Sweden
11.10	Flame Retardant Polyurethane: An Old, an Actual, and a Future Challenge Bernhard Schartel , BAM, Germany	11.10	Fire Safe, Sustainable Loose Furnishing Karolina Storesund , A Steen-Hansen, RISE Fire Research, Norway & F Amon, S Haghghatpanah, I Larsson, RISE Fire Research, Sweden	11.10	Fire Resistance of Building Assemblies – Results of 13 Full-Scale Wall Tests Mohamed Sultan & M Adelzadeh , NRCC, Canada
11.30	Intumescent Polypropylene: Interactions Between Physical and Chemical Expansion Tsilla Bensabath , J Sarazin, M Jimenez, F Samyn, S Bourbigot, UMET, University of Lille, France	11.30	Progress and Status of the U.S. Consumer Product Safety Commission Upholstered Furniture Flammability Project Andrew Lock , D Miller, U.S. Consumer Product Safety Commission, USA	11.30	Cross-Comparison of Screening Tests for Concrete Spalling Siyimane Mohaine , F Robert, CERIB Fire Testing Centre, France, L Bostrom, RISE, Research Institutes of Sweden, M Lion, EDF – Direction Ingenierie et Projets Nouveau Nucleaire, France & R McNamee, Brandskyddslaget, Sweden
11.50	Flame Retardancy of Flax-Reinforced Composites Sophie Duquesne , F Samyn, ENSCL, University of Lille, France, L Bonnaud, Matera Nova R&D Center, Belgium	11.50	Bedding Ignition, Vertical Flame Spread and Subsequent Thermal Impact on Underlying Mattress Mark Gratkowski , United States Department of Justice, ATF, USA	11.50	Reduction of Fire Spalling of Concrete with Small Doses of Polypropylene Fibres Robert McNamee , Brandskyddslaget, Sweden, J Sjoström, L Bostrom, RISE Research Institutes of Sweden, Sweden
12.10	Discussion	12.10	Discussion	12.10	Discussion
12.30	Lunch				
13.40	POSTER SESSION B				
A.	COMBUSTION TOXICITY Chair: Dick Gann, aGANNstFire	B.	MATERIAL BEHAVIOUR IN FIRE Chair: Bernhard Schartel, BAM	C.	FIRE RESISTANCE Chair: Robert McNamee, Brandskyddslaget
14.40	Analysis of Fireground Contaminants From Retired Firefighting Turnout Jackets Using Headspace Sampling-Gas Chromatography-Mass Spectrometry (HS-GC-MS) Adhiraj Shinde , B Ormond, North Carolina State University, USA	14.40	Effects of Thermal Conductivity on Flame Spread Over Carbon-Fiber Composites Haiqing Guo , R Walters, R Lyon, S Crowley, FAA, J Quintiere, University of Maryland, USA	14.40	Compressive Strength of Concrete in Cooling David Rush , School of Engineering, University of Edinburgh, UK & C Yang, Nanjing University of Technology, China

15.00	Evaluating Particle and Gas Transmission Through Firefighters' Clothing Karolina Storesund & R Fjellgaard Mikalsen, RISE Fire Research AS, Norway	15.00	Small Scale Fire Test for Material Substitutions in Aircraft Cabin Materials Richard Lyon, R Walters, FAA & N Safronava, Technology and Management International LLC, USA	15.00	Modelling the Deflection Response of Reinforced Concrete Flat Slabs During Heating Norlizan Wahid & T Stratford, L Bisby, School of Engineering, University of Edinburgh, UK
15.20	An Experimental Evaluation of Fire Toxicity Test Methods Per Blomqvist, RISE Research Institutes of Sweden & A Sandinge, RISE Research Institutes of Sweden/DTU, Denmark	15.20	Microscale Combustion Calorimeter Evaluation of Automotive Materials Jason Huczek & M Janssens, SwRI, USA	15.20	Laboratory Fire Testing on Tunnel Segments: Suez Canal Tunnels Case Pierre Pimienta, B-L Marie-Jeanne, P Rivillon, M Chenaf, CSTB, France, Martin Doll, Arcadis ESG, France, D Rizos, Tarek Amin, Orascom Constructions, Egypt, M Shamma, The Petroleum projects & technical consultations co. PETROJET, Egypt, M Bakhoum, Cairo University, A Fouda, National Authority for Tunnels, Egypt, T Gewaily, Engineering Authority for the Egyptian Armed Force, Y Hussein, Housing and Building, National Research Center, Egypt, T Youssef, L'Universit� Francaise d'Egypte, Sa Saad, Arab Consulting Engineers (ACE), Egypt
15.40	Reproducing the Products of Flaming Combustion in the Microscale Combustion Calorimeter Richard Walters, L Speitel, R Lyon, FAA & N Safronava, Technology and Management International, USA	15.40	Effect of Passive Protection on Fire Propagation of Electrical Cables Dong Zeng, Y Wang, FM Global, Research Division & D Boardman, FM Approvals, USA	15.40	Demonstrating Adequate Safety for a Concrete Column Exposed to Fire, Using Probabilistic Methods Ruben Van Coile, Ghent University, Belgium, D Hopkin, OFR Consultants, UK, N Elhami Khorasani, University at Buffalo, & T Gernay, Johns Hopkins University, USA
16.00	Discussion	16.00	Discussion	16.00	Discussion
16.20	Final Wrap-Up				
16.30	Conference Close				

POSTER SESSION A

A1

Combustion Products and Toxicity

Toxic Emissions from Processed Wood in Cone Calorimeter Tests

Bintu Mustafa, University of Leeds, UK/
University of Maiduguri, Nigeria, **M Mat Kiah**,
University of Leeds, UK/ Universiti Teknologi,
Malaysia, **J Al-Nahdi**, **G Andrews**, **H Phylaktou**,
H Li, University of Leeds, UK

Analysis of Fire Gases in Early Stages of Fire Development

Tanja Gnutzmann & A Hofmann, BAM,
Germany

Particle Size Number Distribution from PIR Foam Fires

M Mat Kiah, University of Leeds, UK/Universiti
Teknologi Malaysia, **G Anderws**, **H Phylaktou**
and **H Li**, University of Leeds, UK

Characterization of Soot from Fires in Laboratory Controlled Environments

Dan Madsen, **J Barton**, **P van Hees**, Div of Fire
Safety Engineering, Lund University, Sweden,
S La Mendola, **L Gren**, **O Rios**, CERN,
Switzerland, **V Malmborg**, **J Pagels**, **A**
Gudmundsson, Div of Ergonomics and Aerosol
Technology, Lund University, Sweden, **D Perovic**,
DBI, Denmark & **B Paulsen Husted**, **K Wilkens**
Flecknoe-Brown, Danish Institute of Fire and
Security Technology, Denmark/Lund University,
Sweden

Wildland Fires

Ember and Fire Modeling to Estimate Safe Separation Distance for Combustible Fences

Kuldeep Prasad, **K Butler**, **E Johnsson**, **L Dubrulle**,
R McDermott & A Maranghides, NIST, USA

Codes and Regulations

Fatal Fires and Rescue Operations – A Review of Swedish Statistics Compared to other Countries

Martin Forsberg & A Mossberg,
Brandskyddslaget, Sweden

A Review of the Swedish Fire Safety Regulation – From the Industry's Perspective

Axel Mossberg, **R McNamee**, **H Nyman**, **M**
Olander, Brandskyddslaget, Sweden

The Grenfell Effect: A Review of U.S. Exterior Wall Regulations

J Beitel, **Jensen Hughes & Lorraine Ross**,
Intech Consulting Inc., USA

Acceptability of Residential Fires – How Much is Ok?

David Rush University of Edinburgh, UK & **E**
Mills, Arup, Glasgow, UK

Compartment Fires

Experimental Study on Smoke Leakage Between Two Rooms using Real Scale Model

Yoshikazu Deguchi, Building Research Institute,
M Kishiue, Ovayashi Corporation N Furukawa, M
Kan, K Yamazaki, K Kayama, Y Omiya, Tokyo
University of Science, Japan

Analyzing Smoke Evolution in Full-Scale Fire Experiments from Recorded Video

Jennifer Ellingham, **B Forrest & E Weckman**,
University of Waterloo, Canada

The Evolution of a Ventilation-Limited Fire in a Multistorey House

Bronwyn Forrest, **E Weckman**, **P Senez**, **N**
Ryder, **M DiDomizio**, University of Waterloo,
Canada

Effects of Fuel Geometry on the Burning Behavior in a Compartment

Yusuke Shintani, Takenaka Corporation, Japan

Fire Investigation

Quality Standards and Accreditation of Fire Investigation in the United Kingdom

Ciara Holland, **D Crowder**, BRE Global Ltd, UK

Alder Street Fire Investigation – Reconstruction and Smoke Toxicity Analysis

Ciara Holland & D Crowder, BRE Global Ltd, UK

Electrical Fires

Ignition of Electrical Components Contained in a Closed Enclosure Adjacent to a Controlled Fire Source **Pascal Zavaleta**, *O Bouygues & C Lapuerta, IRSN, France*

Analytical and Experimental Investigation at Small-Scale of the Effect of Electrical Cable Type on Ignition

Romain Meinier, *IRSN/ Ecole des Mines d'Ales, R Sonnier, L Ferry, Ecole des Mines d'Ales, & P Zavaleta, IRSN, France*

Experimental Thermal Performance of Unloaded Steel Stay-Cables in Fire : Preliminary Progress

B Nicoletta, *J Gales, York University, Canada & Panos Kotsovinos, ARUP, UK*

A2

Fire Resistance

Material Properties in Eurocode 2 – A Background Synthesis and Beyond **Robert McNamee**, *Brandskyddslaget, Sweden, P Pimienta, CSTB, France & Jean-Christophe Mindeguia*, *I2M, University of Bordeaux, France*

Fire Resistance of Aluminium Glazed Partitions Depending on their Height **Bartłomiej Sedlak**, *Paweł Sulik, ITB, Poland & A Garbacz, Warsaw University of Technology, Poland*

Experimental Evaluation of the Thermal Behaviour of a Calcium-Silicate Board Subjected to a Natural Fire

Karim Van Maele, *Etex Building Performance & E Annerel, Etex Building Performance/Ghent University, Belgium*

Equivalent Fire Severity in Steel Structures

Jonathon MacIntyre, *A Abu, P Moss & D Nilsson, University of Canterbury, New Zealand*

Reactive Fire Protection for Structural Steelwork **Alexander Winthorst & P van de Leur** *DGMR Consulting Engineers, Netherlands*

Effects of Thermal Conditions of Steel on the Fire Performance of Thin Intumescent Coatings **Andrea Lucherini**, *C Maluk, The University of Queensland, Australia & J Torero, University College, London, UK*

Fire Risk

Comparative Analysis of Fire Indexing Methodologies

Vasileios Koutsomarkos, *D Rush, G Jomaas, A Law, University of Edinburgh, UK*

Exploratory Analysis of Fire Risks Pertaining to Furanic Platform Chemicals

Anitha Muralidhara, *INERIS, France/Avantium Chemicals, The Netherlands/Sorbonne Universites, France, G-J Gruter, Avantium Chemicals, The Netherlands, C Len, Sorbonne Universites, France/PSL Research University & Guy Marlair, INERIS, France*

Probabilistic Fire Risk Assessment in Buildings using Event Tree Analysis based on UK and USA Fire Statistics

M Manes, David Rush, *University of Edinburgh, UK*

Fire Safety Engineering

The Measured Heat Release Rates of Transient Fuel Items found in Nuclear Power Plants

Jason Floyd, *M DiDomizio, Jensen Hughes, USA, K McGrattan & M Bundy, NIST, USA and M Randelovic & A Lindeman, Electric Power Research Institute, USA*

New Anglo-Polish Methodology for Fire Strategies Evaluation

Dorota Brzezinska & P Bryant, *Lodz University of Technology, Poland*

Analysis on Emergency Response and Evacuation of Dongao Road Tunnel Combined Effect of Fire Protection Systems

Kang Che Ying, *C Shen Wen, W Guan Yuan, Central Police University, Y Yi-Ling, Kaohsiung City Fire Department, Taiwan*

Application of Python Programming Language in Structural Fire Engineering - Monte Carlo Simulation

Ian Fu, *J Rickard, D Hopkin, M Spearpoint OFR Consultants, UK*

Conservatism and Verification Methods in Fire Modelling

Wallace Zhong, *Y He, O Mirza, Western Sydney University, M Rowley, Fire and Rescue NSW & A Chubb, Smoke Control Systems, Australia*

Reliability-Based Methodology for Determining the Effects of Sprinkler and Fire Brigade Intervention on Fire Resistance Design

Ziengbe Inerhunwa, *Y C Wang, M Su, University of Manchester, UK*

Fire Safety Design and Wind Turbines **Aleksandra Zawadowska**, *RISE Research Institutes of Sweden, Z Wang, RISE Research Institutes of Sweden/ Nanjong University, China, F You, J Jiang, Nanjing Technical University, China, A Dederichs, RISE Research Institutes of Sweden/ Technical University of Denmark and J Jancik, Technical University of Denmark/University of Žilina, Slovakia*

A3

Flame Retardants and FR Applications

Synthesis of Copper (II) – Zinc Molybdates as Smoke Suppressants for PVC Compositions **Antonio Rodolfo Jr**, *Braskem S/A/State University of Campinas & LH Innocentini- Mei, State University of Campinas, Brazil*

Differences in Simultaneous Thermal Analysis and Time-to-Ignition of Wood Materials Treated with Water Glass Flame Retardants

Juraj Jancik, *L Makovicka-Osvaldova, University of Žilina, Slovakia & F Markert, Technical University of Denmark, Denmark*

Combining Fire Safety and Low Emissions in Bedding and Furniture: An Industry Challenge or Opportunity?

Paul Cookson, *Dow Europe GmbH, Switzerland*

Material Behaviour in Fire

Ignition of Large Scale Polymers Exposed to High Radiative Heat Fluxes

Guillaume Rambaud, *CEA, DAM, GRAMAT, France, K Schmidt, B Roemer, Wehrwissenschaftliches Institut fur Schutztechnologien, Germany*

Evaluation of Fire Performance of Sandwich Panels with Defects Tested in Horizontal and Vertical Orientation using Cone Calorimeter **Sanjay Pareek**, *Nihon University, H Yoshioka, NILIM, T Noguchi, The University of Tokyo & T Hayakawa, TSV, Japan*

Calcium Aluminate Based Passive Fire Protection Systems: Main Technologies and Properties

Bruno Espinosa, *S Berger, IMERYS, France & C Alt, IMERYS, USA*

Thermal Behaviour of Laminated Bamboo Structures under Fire Conditions *I Pope, A Osorio, Juan Hidalgo, The University of Queensland, Australia & J Torero, University College London, UK*

Relationship Between Non-Metallic Material Content and Fire Properties of Electric Cables **Katarzyna Kaczorek-Chrobak**, *J Fangrat, Instytut Techniki Budowlanej, Poland*

Material Properties of Clay and Lime Based Plaster for Structural Design

Johanna Liblik, *A Just, B Maaten, M Sulg, S Pajusaar, Tallin University of Technology, Estonia & J Koppers, TU Braunschweig, iBMB, Germany*

Exploring the Influence of Stress and Heating Conditions on the Occurrence of Fire-Induced Concrete Spalling

A Iazouski, *International Master of Science in Fire Safety Engineering, D Lange, Cristian Maluk, The University of Queensland*

New Approaches for Reaction-to-Fire Assessment of Wooden Products

Elena Mikhaylova, *Y Tochilkin, All— Russian Research Institutes for Fire Protection, Russia*

Transportation

Flow Dynamics Near CNG Passenger Car After Opening of Safety Relief Device

Milan Jahoda, J Ira, University of Chemistry and Technology & L Hasalova, V Vystrcil, Technical Institute of Fire Protection in Prague, Czech Republic

New Energy Carriers and Additional Risks for User Safety in Tunnels

Christophe Willmann, Tunnel Study Center & **Benjamin Truchot**, INERIS, France

LNG Powered Vehicles as an Emergent Transport Fire Risk: An Emergency Management on a Tanker Truck Crash

Vincenzo Puccia, P Cancelliere, Ministry of Interior, Italian National Fire Rescue and Service, Italy

Reaction-to-Fire Properties of Maritime Composite Materials

Anna Sandinge, A Dederichs, RISE Research Institutes of Sweden/DTU, Denmark & P Blomqvist, RISE Research Institutes of Sweden & Frank Markert, DTU, Denmark

Improving Car Fires Heat Release Rate Modelling in CFD Codes

Paul Lardet, G Giovannelli, E Mehdi Koutaiba, CSTB, France

Evacuation Under the Influence of Alcohol: A Laboratory Experiment

Malin Bjorkqvist, A Broholm, Lund University, Sweden

Pre-School Children's Knowledge of Fire and Evacuation

Jenny Blom & H Frantzich, Lund University, Sweden

Walking Speed Reduction Rates at Intersections While Wayfinding Indoors: An Experimental Study

Y-H Bae, J-Y Son, W-H Hong, Kyungpook National University, Y-C Kim, Hanyang University Erica, **Ryun-Seok Oh**, J-H Choi, Pukyong National University, South Korea

Evaluation of Effective Cognition Area (ECA) of Signage Systems with Backlight in Smoke Condition

S-H Baek, R-S Oh, **Jun-Ho Choi**, Pukyong National University, Y-C Kim, Hanyang University Erica, Y-H Bae, W-H Hong, Kyungpook National University, South Korea

Influences of Firefighter's Movement on Evacuee's Crowd Flow on Stairs

Kosuke Fujii, National Research Institute of Fire and Disaster, K Kawashima, Y Ohmiya, Tokyo University of Science & J-i Yamaguchi, Obayashi Corporation, Japan

Validation of Pedestrian Simulation by Experiment data

Akihide Jo, M Imanishi, T Sano, Y Ohmiya & J Yamaguchi, Takenaka Corporation, Japan

Macroscopic Model for Fire Safety Evacuation: Evaluation and Comparison with a Microscopic Model

Alexis Marchand & A Collin, LEMTA, Université de Lorraine, CNRS, France

Selection of Vertical and Horizontal Routes by using Emergency Signs in Underground Stations

Jun Kubota, T Sano, M Yasue, Waseda University, Japan

An Investigation of the Proportionality of Safety Margins with Increased Ceiling Height in Relation to BS9999:2017

Bill Hay, Arup Fire, UK, I Sanderson & R Thomson, Glasgow Caledonian University, UK

Mass Timber

Heat Flux Distribution on a Façade from Timber-Lined Compartments

Alastair Bartlett, G Kanellopoulos & A Law, The University of Edinburgh, UK

Tensile Strength of Wood in High Temperatures Before Charring

Henri Kuronen, E Mikkola, KK-Palokonsultti Oy & S Hostikka, Aalto University, Finland

Fire Performance of Laminated Timber Assemblies

Lindsay Ranger, C Dagenais, FPInnovations & N Bénichou, NRCC, Canada

Fire Dynamics in Large Open Timber Structures

Bronwyn Forrest, B Weckman, University of Waterloo & B Chorlton, J Gales, York University, Canada

Relative Fire Performance of Heritage and Contemporary Timber

Bronwyn Chorlton, John Gales, York University, Canada

B2

Pool Fires

Lip Height Effect in Quadrangular Steel Containers

Einar Kolstad, V Frette & B Hagen, Western Norway University of Applied Science, Norway

The Chemical Structure of Medium-Scale Pool Fires

Ryan Falkenstein-Smith, K Sung, J Chen, A Hamins, NIST, USA

Modelling

Experimental Study of Smoke Movement Between Two Rooms Connected by a Stairwell

S Haouari Harrak, Université de Lorraine/ CSTB, **Rabah Mehaddi**, P Boulet, Université de Lorraine & E Mehdi Koutaiba, CSTB, France

Scoping Study on the Significance of Mesh Resolution Vs. Scenario Uncertainty in the CFD Modelling of Residential Smoke Control Systems

Danny Hopkin, C Hopkin, M Spearpoint, OFR Consultants, B Ralph, Foster + Partners, UK & R Van Coile, The University of Ghent, Belgium

Application of the Computational Fluid Dynamics to Analyze Heat Transfer through Protective Clothing caused by Exposure to Flame

Adam Puszkarz & W Machnowski, Lodz University of Technology, Poland

FDS Simulations and Modelling Efforts of Travelling Fires in a Large Elongated Compartment

Johan Anderson, J Sjöström, A Temple, RISE, Sweden, M Charlier, ArcelorMittal Global R&D, Luxembourg, X Dai, S Welch & D Rush, University of Edinburgh, UK

Re-visiting NIST Reduced/Full-Scale Enclosures (R/FSE) Experiments (2007-2008)

Mohamed Beshir, A Cicone, Y Wang, S Welch, D Rush, University of Edinburgh, UK

Fluent-Based Framework for Modeling Flaming Ignition and Burning of Combustible Materials

Alexander Snegirev, E Kuznetsov & E Markus, Peter the Great St.-Petersburg Polytechnic University, Russia

POSTER SESSION B

B1

Flame Spread

Effect of an adjacent wall on the upward flame spread over PMMA

F Tang, University of Warwick, UK/ Hefei University of Technology, China, L Chen, Hefei University of Technology, China, J Zhang, FireSERT, Ulster University, UK and **Jennifer Wen**, University of Warwick, UK

Experimental and Numerical Investigations on Wood Lateral Ignition and Flame Spread

J Colombiano, **Virginie Dréan**, Efectis France, T Rogauze, B Batiot, F Richard, Université de Poitiers, ISAE-ENSMA, France, F Talal, Efectis UK & A Nadjei, Ulster University, UK

Human Behaviour in Fire including Evacuation

Burning Biases: Mitigating Cognitive Biases in Fire Engineering

Michael Kinsey, Arup, China, M Kinateder, NRCC, Canada & S Gwynne, Movement Strategies, UK

Kinetic Architecture and Collective Intelligence for Fire Evacuation

Angella Johnson, S Zheng, A Nakano, J-H Choi, University of Southern California, USA

The Effects of Linguistic Cues on Evacuation Movement Times

Natalie Mazur, J Gales, York University, Canada, R Champagne, University of Waterloo, Canada & M Kinsey, Arup, China

Dynamic Determination of the Mean Radiation Path Length in the Simulations of Transient Flame Development

*E Kuznetsov, **Ekaterina Markus**, A Snegirev, Peter the Great St.-Petersburg Polytechnic University, Russia*

Estimating Experimental Error for Fire Model Uncertainty Assessment

***Marc Janssens** & J Huczek, SwRI, USA*

Characterising Natural Fires in Large Compartments – Revisiting an Early Travelling Fire Test (BST/FRS 1993) with CFD

***Xu Dai**, S Welch, D Rush, University of Edinburgh, UK, M Charlier, ArcelorMittal Global R&D, Luxemburg & J Anderson, RISE, Sweden*

Water Curtains : From Experimental Tests to Near Field CFD Modelling

***Fabio Alaimo Ponziani**, A Tinaburri, Vigili del Fuoco, Italy*

Pyrolysis

Validation of a Wood Combustion Model for use in Numerical Fire Modeling

***Islam Gomaa**, M Weinfurter, A Bwalya, NRCC, Canada & S Gwynne, Movement Strategies, UK*

PVC and EVA/ATH Decomposition in Cone Calorimeter: Experiments and Modeling

***Olivier Authier**, A Amokrane, EDF R&D Lab Chatou, S Chatenet, EDF R&D Lab Chatou/University of Lille, G Fontaine, S Bourbigot, University of Lille, France*

A Model for Pyrolysis and Oxidation of Two Common Structural Timbers

***Aleksi Rinta-Paavola** & S Hostikka, Aalto University, Finland*

Thermo-Oxidative Behaviour of Polyamides and Combustion Products M A Albat, A Schaberg,

***Roland Goertz**, University of Wuppertal, Germany*

Gases Evolved when Pine Wood is Heated using the Cone Calorimeter with a Nitrogen Atmosphere

*A Irshad, University of Engineering & Technology, Pakistan, **Gordon Andrews**, H Phylaktou & B Gibbs, University of Leeds, UK*

B3

Ventilation and Smoke Control

The Unintended Consequences of Improved Airtightness Levels on the Operation of Pressurization Systems in Tall Buildings

***James McGonigal**, Astute Fire Engineering Ltd, UK, I Sanderson, Glasgow Caledonian University, UK*

Control of Ventilation Systems in the Event of Fire - A Practical Test

***Gunther Schwabegger**, IBS – Technisches Büro GmbH & Josef Huber, Institut für Brandschutztechnik und Sicherheitsforschung GmbH, Austria*

How to Design a Proper Pressure Differential System in High-Rise Buildings: New European Standard in Comparison with Existing Codes

***Michal Kozek**, Gebäudeversicherung Kanton Zürich, Switzerland*

Fire and Life Safety Improvements for the Vertical World

***Justin Francis**, Queensland Fire and Emergency Services, Australia*

Hot Smoke Tests – Lessons for Better Design of Fire Protection Systems

***Piotr Smardz**, J Paliszek-Sakadyga, INBEPO, Poland*

Smoke and Heat Control System Based on Air Barrier

***Grzegorz Krajewski**, Fire Research Department, Building Research Institute, Poland*
Detection and Suppression

Influence of Surfactants on Cooling Efficiency of Water Droplets Impinging onto Hot Metal Surfaces

***Joachim Soreng Bjorge**, Q Radgivning AS/PDS Protek/ University of Bergen, S Arne Bjorkheim, M- M Metallinou, Western Norway University of Applied Science & T Log, Western Norway University of Applied Science/ Equinor Karsto, Norway*

Assessment of Correlations for the Evaporation of Droplets using a 1D, Spherical Heat Transfer Model

***Jason Floyd**, Jensen Hughes, USA*

J-Value Analysis of the Retro-Fit of Sprinkler Systems to London's Existing High-Rise Residential Buildings

***Matthew Arnott**, D Hopkin & M Spearpoint, OFR Consultants, UK*

Longer Discharge Times for Clean Agent Fire Extinguishing Systems in Biological Laboratories

***Johan Hoogeweg** and R Oldengarm, DGMR, The Netherlands*

Facades

Problems with Safest Configuration of Laminated Glass Units in Facades Regarding Falling Debris in Case of Fire

*B Sedlak, **Jacek Kinowski**, P Sulik, G Kimbar, Instytut Techniki Budowlanej, Poland*

Performance of Fire Breaks Installed Within EPS Insulated Façade Systems

***Octavian Lulu**, T Lennon, BRE Global Ltd, UK, R Darmon, Technical University of Cluj-Napoca, Romania & I Anghel, Police Academy, Fire Officers Faculty, Bucharest, Romania*

Using CFD Tool to Determine Flame Propagation Characteristics over Exterior Video Cladding Wall

*X Chen, California State University at Los Angeles & **Frank Wang**, Jensen Hughes, USA*

Experimental Methodology to Study the Fire Contribution of Cladding Materials

***Juan Hidalgo**, B Garvey, J Ogilvie, J Carrascal, D Lange, C Maluk, M McLaggan, A Osorio, The University of Queensland, Australia & J Torero, The University of Maryland, USA*

Spreading Fire by the ETICS Façade

***Pawel Sulik**, B Sedlak, Building Research Institute, Poland*

Development and Suitability of BS8414 – A Technical Review

***Merlyn Forrer**, Design Fire Consulting, UK*

Challenging Measurements

Comparison of HRR Results of Cone Calorimeter Tests: With and without FTIR Connected

***Tetsuya Hayakawa**, TSV, H Yoshioka, NILIM & K Yoshida, Yokohama National University, Japan*

Oxygen Index Test for use in Flammability Evaluation in Microgravity

***Makiko Fukuda**, Intec Co., S Takahashi, Gifu University, KiYoshida, Nippon Hakuyohin Kentei Kyokai, K Wakatsuki, Shinshu University, Y Nakamura, Toyohashi University of Technology, S Suga, K Katano, Suga Test Instruments Co & M Kikuchi, Japan Aerospace Exploration Agency, Japan*

Investigation of Insulation Materials Based on Renewable Resources for Facades According to German Requirements

***Christian Northe**, J Koppers, J Zehfuss, Technische Universität Braunschweig, iBMB, Germany.*

The programme is correct at the time of going to print but the organisers reserve the right to make changes if necessary

The logo for interflam, featuring a stylized flame icon to the left of the word "interflam" in a bold, sans-serif font.

