HUMAN BEHAVIOUR IN FIRE PAPERS
A Compendium of Research Papers
(1998 – 2013)

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Helen Graesser, Michelle Ball, Dorothy Bruck, Victoria University, Centre for Environmental Safety and Risk Engineering (CESARE), Australia

11.17 Evacuation from a single family house [HB2009] [Pages 255 - 266]
Guylène Proulx, National Research Council Canada, Canada, A Parfenenko, Academy of State Fire Service of Russia, Russia

11.18 Behaviours, motivations and timescales: Towards the development of a comprehensive database of human behaviour in dwelling fires [HB2012] [Pages 218 - 229]
David Wales, O Thompson, Kent Fire and Rescue Service, UK

11.19 An investigation into fatal dwelling fires involving children aged five years and under [HB2012] [Pages 230 -238]
Amy Harpur, K Boyce, N McConnell, University of Ulster, UK

11.20 Risk factors that contribute to house fire fatalities despite the presence of a working smoke alarm [HB2012] [Pages 371 – 376]
Erin Doolan, M Ball, Victoria University, Australia

11.21 The key personal, environmental and behavioural factors contributing to smoking material-related residential fire fatalities [HB2012] [Pages 606 - 611]
Lin Xiong, D Bruck, M Ball, Victoria University, Australia

11.22 An investigation into the circumstances surrounding fatal dwelling fires involving the elderly during 1999-2009 [IF2013] [Pages 931-942]
Amy Harpur, K Boyce, N McConnell, University of Ulster, UK

11.23 "Get Out, Stay Out" versus Occupier Independence: The results of an 18 month study of human behaviour in accidental dwelling fires in Kent [IF2013] [Pages 943-954]
Owain Thompson, D Wales, Kent Fire and Rescue Service and L Hulse, E Galea, University of Greenwich, UK

Understanding Behaviour (Alternative Methodologies including Virtual Reality)

12.1 The Experimental Study of the Evacuation Using VR Simulator [HB1998] [Pages 469 - 478]
H. Kakei, H. Sato, T Sako

12.2 Comparing journalism, conventional research and legal proceedings as sources of insights into human behaviour in disasters in buildings [HB2004] [Pages 193 - 202]
Jake Pauls, Independent Consultant In Building Use And Safety & Phillip Wearne, Television Producer and Journalist

12.3 Complex systems – a holistic approach for understanding and modelling fire evacuation behaviour [HB2009] [Pages 525 - 530]
Daniel Nilsson, Lund University and Christian Uhr, Swedish Civil Contingencies Agency, Revinge College, Sweden

12.4 Hotel evacuation at night; an analysis of unannounced fire drills under various conditions [HB2009] [Pages 219 - 230]
Margrethe Kobes, Netherlands Institute for Safety and VU University Amsterdam, Nancy Oberijé, Karin Groenewegen, Netherlands Institute for Safety, Ira Helsloot, VU University Amsterdam and Bauke de Vries, Eindhoven University of Technology, The Netherlands

Behavioural/Risk Modelling

13.13 Modeling and reality of evacuation process [IF2013] [Pages 509-513]
Dmitry Samoshin, V Kholshchevnikov, Academy of State Fire Service of Russia, Russia

13.14 Minimizing crisis through knowledge and anticipation: Qualitative modeling of building evacuation process [IF2013] [Pages 515-520]
Manuela Tancogne-Dejean, ATILH / University of Technology of Troyes and P Laclémence, University of Technology of Troyes, France

13.15 Modelling the response of occupants to warnings from different fire safety systems [IF2013] [Pages 577-582]
Xia Zhang, X Li, G Hadjisophocleous, Carleton University, Canada

Computational Modelling - Development, Validation and Verification

14.1 A Review of the Methodologies Used in the Computer Simulation of Evacuation from the Built Environment [HB1998] [Pages 681 - 690]
S. *Gwynne, E.R. Galea, M Owen, P.J. Lawrence, L. Filippidis*

14.2 Survey Analysis and Modelling of Office Evacuation using the CRISP Model [HB1998] [Pages 691 – 702] *K.E. Boyce, J.N Fraser-Mitchel, T.J. Shields*

14.3 A Comparison of Predictions from the buildingEXODUS Evacuation Model with Experimental Data [HB1998] [Pages 711 - 720]
E.R. Galea, S. *Gwynne, M Owen, P.J. Lawrence, L. Filippidis*

14.4 A Practical Example of an Evacuation Model for Complex Spaces [HB1998] [Pages 743 - 752]
R.F Fahy

14.5 Verifying the predictive capability of EXIT89 [HB2001] [Pages 53 - 64]
Rita F. Fahy National Fire Protection Association, USA

14.6 Simulating occupant interaction with smoke using buildingEXODUS [HB2001] [Pages 101 - 110]
Gwynne, S., Galea, E.,R., Lawrence, P.,J., And Filippidis, l. Fire safety engineering group, University of Greenwich, UK, Volker Schneider, Integrierte Sicherheits-Technik GmbH, Feuerbachstr. 19, 60325 Frankfurt / Main, Germany

14.7 Modeling contra flows during building evacuations, [IF2001] [Pages 887-897]
Rita Fahy, NFPA, USA

14.8 Predicting the evacuation performance of passenger ships using computer simulation, *[IF2001] [Pages 853-864]*
Edwin Galea, S Gwynne, D Blackshields, L Filippidis, P Lawrence, Univ of Greenwich, UK

14.9 Modelling of human response and behaviour in complex surroundings [HB2004] [Pages 387 - 398]
Volker Schneider, Integrierte Sicherheits-Technik Gmbh, Germany

14.10 A dynamic network model for circulation and evacuation [HB2004] [Pages 483 - 488]
Shrikant B Sharma, D Brocklehurst, P Westbury, Buro Happold Engineers Limited, UK

14.11 A general, computationally intelligent model for egress simulation [IF2004] [Pages 387 - 398]
Richard Holden, A Cangelosi, University of Plymouth, UK

14.12 Limits to locality in cellular automata models of pedestrian behaviour [IF2004] [Pages 761 - 766]
Richard Holden, A Cangelosi, University of Plymouth, UK

14.13 The representation of occupant sensitivity to irritant fire gases within evacuation analysis [IF2004] [Pages 353 - 364]
Ed Galea, S Gwynne, P Lawrence, Z Wang, University of Greenwich, UK

14.14 FDS+EVAC: Evacuation module for fire dynamics simulator [IF2007] [Pages 1443-1448]
Timo Korhonen, S Hostikka, VTT, S Heliövaara, H Ehtamo, Helsinki University of Technology, K Matikainen, University of Helsinki, Finland

14.15 Agent-based emergency egress simulation with steering behaviors [IF2007] [Pages 1411-1416]
Charles Thornton, R O'Konski, B Hardeman, Thunderhead Engineering Consultants, USA

14.16 PyroSim: A dynamic graphical user interface for the fire dynamics simulator and Pathfinder: A companion egress model [IF2007] [Pages 1417-1422]
Daniel Gemeny, A Kline, Rolf Jensen & Associates, Inc. and B Hardeman,Thunderhead Engineering Consultants, Inc., USA

14.17 Development and validation of a crawling model in an existing computational Egress Tool [IF2007] [Pages 271-282]
Steve Gwynne, Hughes Associates, Inc. and R Muhdi, J Davis, Auburn University, USA

14.18 Simulating the evacuation of very large populations in large domains using a parallel implementation of the buildingEXODUS evacuation model [IF2007] [Pages 259-270]
Angus Grandison, Y Muthu, P Lawrence, E Galea, University of Greenwich, UK

14.19 A comprehensive modern approach to developing evacuation data capture/analysis and simulation tools for real world fire engineering [HB2009] [Pages 195 - 206]
Shrikant Sharma, V Tabak, D Brocklehurst, Buro Happold Ltd and A Sagun, D Bouchlaghem, Loughborough University, UK

14.20 Simulation of human movement by cellular automata models using different update schemes [HB2009] [Pages 543 - 548]
Christian Rogsch, University of Wuppertal, A Schadschneider, University of Cologne, A Seyfried, Forschungszentrum Jülich GmbH, Germany

14.21 Simulating building evacuation using an agent based approach [HB2009] [Pages 549 - 554]
Nate Wittasek, Arup, USA

14.22 Flow-based microsimulation of evacuation processes [HB2009] [Pages 555 - 560]
Nick Waterson, Mott MacDonald Ltd/Imperial College London, S Le Bail, Mott MacDonald Ltd and B V H Boulanger, Imperial College London, UK

14.23 Introducing pathfinder: An agent-based egress simulator [HB2009] [Pages 567 - 572]
Charlie Thornton, Richard O'Konski, Brian Hardeman, Thunderhead Engineering Consultants, Inc., USA

14.24 Microscopic modelling of crowd movement at major events [IF2010] [Pages 873-878]
Volker Schneider, R Könnecke, IST GmbH, Germany

14.25 Implications of computer simulation and experimental studies of evacuation behaviour in the simple-shaped room [IF2010] [Pages 1467-1472]
Tomonori Sano, Waseda University, Y Yoshida, N Takeichi, Y Minegishi, Takenaka Corporation and T Kimura, A & A Co., Ltd., Japan

14.26 Microscopic modelling of agents with mobility restrictions and small-size social groups [HB2012] [Pages 377 - 385]
Volker Schneider, R Könnecke, IST GmbH, Germany

14.27 Modeling social groups and roles in egress simulation [HB2012] [Pages 569 - 574]
Mei Ling Chu, K Law, Stanford University, USA

14.28 From unbalanced initial occupant distribution to balanced exit usage in a simulation model of pedestrian dynamics [HB2012] [Pages 536 - 540]
Tobias Kretz, A Grosse, PTV AG, Germany

14.29 Validation of evacuation model using real data – What is the influence of the composition of the population? [IF2013] [Pages 991-1002]
Janne Gress Sørensen, A Dederichs, Technical University of Denmark, Denmark

14.30 Employing Validation and Verification tests as an integral part of evacuation model development [IF2013] [Pages 979-990]
Enrico Ronchi, D Nilsson, Lund University, Sweden, O Zechlin, Siemens, Switzerland and W Klein, H Mayer, Siemens, Germany

Evacuation Modelling - Reconstruction, Investigation, Comparison and Application

15.1 Analysis and Modelling of the Unannounced Evacuation of a Large Retail Store [HB1998] [Pages 291 - 298]
B. Ashe, TJ Shields

15.2 A Comparison Between Actual and Predicted Evacuation Times [HB1998] [Pages 461 - 468]
P.A. Olsson, MA. Regan

15.3 Evacuation of a Theatre: Exercise vs Calculations [HB1998] [Pages 479 - 488]
H Weckman, S *Lehtimiiki,* S *Oy,* S *Mannikko*

15.4 Queuing, Exit-Sorting and Evacuation in Fire Emergencies: A Computer Simulation Investigation [HB1998] [Pages 721 - 730]
W.E. Feinberg, NR. Johnson

15.5 Simulation Versus Code Methods for Predicting Airport Evacuation [HB1998] [Pages 519 - 528]
*D.*G. *Newman, N Rhodes, H.A. Locke*

15.6 The Numerical Simulation of Aircraft Evacuation and its Application to Aircraft Safety [HB1998] [Pages 529 - 540]
E.R. Galea, M Owen, P.J Lawrence, L. Filippidis

15.7 The Forensic Engineering Application of Computer Modeling Techniques in the Determination of Human Response to Fire [HB1998] [Pages 753 - 760]
JL McDowell, G. C. *Burton*

15.8 A consideration of evacuation attributes and their functional sensitivities [HB2001] [Pages 111 - 122]
G.E. Livesey, I.R. Taylor and H.A. Donegan, School of Computing and Mathematical Sciences, University of Ulster, UK

15.9 Simulated evacuations of an airport terminal building, using the crisp model [HB2001] [Pages 89 - 100]
Jeremy Fraser-Mitchell Fire Safety Engineering Centre, FRS, BRE

15.10 Comparison of model predictions and actual experience of occupant response and evacuation in two highrise apartment building fires [HB2001] [Pages 77 - 88]
D. Yung, G. Proulx and N. Benichou, Fire Risk Management Program National Research Council of Canada Ottawa, Canada

15.11 A performance-based design of a hotel building using two egress models: A comparison of the results [HB2004] [Pages 399 - 410]
Erica Kuligowski, NIST, James Milke, University of Maryland, USA

15.12 The simulation of fire and evacuation at sea [IF2004] [Pages 755 - 760]
Ed Galea, A Grandison, L Filippidis, S Gwynne, J Ewer, P Lawrence, University of Greenwich, UK

15.13 Numerical studies on evacuation design in the airport terminals [IF2004] [Pages 749-754]
Candy Ng, W Chow, The Hong Kong Polytechnic University, China

15.14 Evacuation of a multi-level office building: Comparison of predicted results using an agent-based model with measured data [IF2004] [Pages 767 - 772]
Nick Waterson, A Mecca and J Wall, Mott MacDonald Limited, UK

15.15 A preliminary investigation of the evacuation of the WTC North Tower using computer simulation [HB2004] [Pages 167 - 180]
E.R Galea, P Lawrence S Blake, S Gwynne, H Westeng, University Of Greenwich, UK

15.16 Investigating the impact of occupant response time on computer simulations of the WTC North Tower evacuation [IF2007] [Pages 1435-1442]
Ed Galea, G Sharp, P Lawrence, A Dixon, University of Greenwich, FSEG, UK

15.17 A study on evacuation of school buildings for elementary education [HB2009] [Pages 231 - 242]
Rosaria Ono, University of São Paulo and Marcos Vargas Valentin, Valentin Arquitetura, Brazil, Edwin Galea, Z Wang, F Jia, University of Greenwich, UK

15.18 Implications of modelling and experimental studies of evacuation behaviour on stairs for multistorey building design [HB2009] [Pages 147 - 160]
David Purser, Hartford Environmental Research and Karen Boyce, FireSERT, University of Ulster, UK

15.19 Comparison of two egress models and a full-scale experiment [HB2009] [Pages 573 - 578]
Bjørg Christoffersen, AK83, Consulting Architects and Christina Söderlind, ALECTIA A/S, Denmark

15.20 Data collection and analysis of evacuation scenarios in Finland [IF2010] [Pages 1455-1460]
Tuomo Rinne, K Tillander, P Grönberg, VTT Technical Research Centre of Finland, Finland

15.21 Controlled evacuation in historical and cultural structures: Requirements, limitations and the potential for evacuation models [HB2012] [Pages 447 - 459]
Elisabetta Carattin, University of Venice, Italy and V Brannigan, University of Maryland, USA, Dan Diaconu-Şotropa, D Roşu, D Robu, Technical University "Gh. Asahi" of Iaşi, Romania

15.22 Exploring the current egress models capabilities for simulating evacuation of children through stairs [IF2013] [Pages 1013-1022]
Arturo Cuesta, O Abreu, D Alvear, University of Cantabria, Spain and F Ancona, Politecnico di Bari, Italy

15.23 Exploring the appropriateness of the aviation industry evacuation certification requirements using fire and evacuation simulation [IF2013] [Pages 1035-1047]
Edwin Galea, Z Wang, F Jia, University of Greenwich, UK

Human Behaviour and Performance Based Design/Regulation

16.1 Integrating Human Factors Issues into Engineered Fire Safety Design [HB1998] [Pages 47 - 58]
B.J. Meacham

16.2 Egress Design in Underground Transport Systems- The Case of the New Athens Metro [HB1998] [Pages 808 -817]
K.K. Papaioannou

16.3 An Engineering Model for the Estimation of Occupant Pre-movement and or Response Times and the Probability of Their Occurrence [HB1998] [Pages 13 - 30]
H.A. MacLennan, MA.Regan, R. Ware

16.4 Value-based Fire Safety: A New Regulatory Model for Mitigating Human Error [HB1998] [Pages 105 - 114] *MD. Chubb, R.B. Williamson*

16.5 Performance Based Fire Safety Regulation Under Intentional Uncertainty [HB1998] [Pages 411 - 420]
V. Brannigan, C. *Smidts*

16.6 Human Behaviour Approach to Occupancy Classification [HB1998] [Pages 83 - 92]
D.K. Beller, JM Watts

16.7 Human Behaviour and the Practising Fire Engineer [HB1998] [Pages 93 - 104]
CA. Caldwell, D.L. Palmer

16.8 Fire and Life Safety Education: Bridging the Gap Between Human Behavior and Performance-Based Design [HB1998] [Pages 125 - 134]
P.A. Powell, R.L.P. Custer

16.9 Non Conventional Evaluation of Escape Behaviour Factors and Design Parameters in Fire Buildings Evacuation [HB1998] [Pages 115 - 124]
M Clerico, L. Coppola, G. Gecchele

16.10 A Rational Fire Safety Engineering Approach to the Protection of People with Disabilities in or Near Buildings During a Fire or Fire Related Incident [HB1998] [Pages 341 - 352]
C.J Walsh

16.11 Quantification of Behaviour for Engineering Design Standards and Escape Time Calculations [HB1998] [Pages 497 - 508]
D.A. Purser

16.12 People Evacuation in Historical Buildings [HB1998] [Pages 319 - 332]
G. Gallina, G. Mutani

16.13 Determination of Evacuation Times as a Function of Occupant and Building Characteristics and Performance of Evacuation Measures [HB1998] [Pages 673 - 680]
A.W. Heskestad, 0.J. *Meland*

16.14 Human Behaviour Modeling as Part of an Engineered Design [IF1999] [Pages 747-756]
Rita F Fahy, NFPA & J Sapochetti, Worcester Poly Inst, USA

16.15 A performance-based approach to exiting of the proposed Vancouver Convention and Exhibition Centre utilizing fire modelling, [IF2001] [Pages 1523-1528]
Harold Locke, G Gibson, Locke, MacKinnon Domingo Gibson & Assc, Canada

16.16 A qualitative approach to children of developing countries from human behaviour in fire aspect [HB2001] [Pages 531 - 538]
Aydn Ozkaya, Kama Design, Consultancy and Training Services Ltd, Turkey

16.17 Integrating human behavior in fires into fire protection engineering design [HB2001] [Pages 403 - 410]
Morgan J. Hurley, SFPE, Daniel J. O'Connor, Schirmer Eng Corp, USA

16.18 Human Behaviour and risk based fire regulation [HB2001] [Pages 411 - 418]
Vincent Brannigan, C Smidts, University of Maryland, USA, A Kilpatrick, Glasgow Caledonain University, UK

16.19 A sensitivity analysis approach to improve evacuation performance and to optimise staff/patient ratios in hospitals and nursing homes [HB2001] [Pages 465 - 470]
Mahmut Horasan, AGAL - Scientific Services Laboratory, Australia

16.20 Fire safety for historical buildings and performance criteria for their use [HB2001] [Pages 451 - 458]
Luigi Coppola & Giulio Gecchele, Dip. Georisorse e Territorio - Politecnico di Torino, Italy

16.21 Evacuation scenarios and performance-based regulations [HB2001] [Pages 439 - 444]
Doug Beller, NFPA International, USA

16.22 To what extent can the factor of human behaviour be taken into this equation to formulate an adequate fire safety solution? [HB2001] [Pages 459 - 464]
Michael Eady, HM Fire Service Inspectorate, UK

16.23 Technical framework for fire safety that incorporates some characteristics of human behaviour [HB2001] [Pages 521 - 530]
E W Marchant and A G Copping, Edinburgh Fire Consultants Limited and University of Bath, UK

16.24 Promoting performance through pro-active fire prevention regulation. A cautionary case-study of the Ernest Adams fire, Christchurch, New Zealand, 4 February 2000 [HB2001] [Pages 419 - 430]
Mark Chubb,New Zealand Fire Service

16.25 Computational Fire Engineering - Do have what we need? [HB2004] [Pages 21 - 22]
Ed Galea, University of Greenwich

16.26 Implementation of performance-based fire safety design in Miramar Shopping Centre [HB2004] [Pages 495 - 500]
Shen-Wen Chien, Meng-Jung Lin, Yi-Hsuan Lu, Central Police University, Wen-Sheng Hsu, Forerun Consulting Co., Ltd, Wen-Long Chen, National Fire Agency Ministry Of Interior Po-Ta Huang, Ta-Jing, Fire Safety & Risk Management Consultancy Co., Ltd. Taiwan

16.27 The basis for egress provisions in US building codes [IF2004] [Pages 375 - 386]
Richard Bukowski, E Kuligowski, NIST , USA

16.28 Egress provisions and the Dutch Buildings Decree [IF2004] [Pages 425 - 434]
Peter van de Leur, DGMR Consulting Engineers, E Janse, Lichtveld Buis &Partners Consulting Engineers, The Netherlands

16.29 How reliable are commercial software-tools for evacuation calculation? [IF2007] [Pages 235-245]
Christian Rogsch, W Klingsch, H Weigel, University of Wuppertal and A Seyfried, Centre for Applied Mathematics, Germany

16.30 Identifying critical evacuation factors and the application of egress models [IF2007] [Pages 203-214]
David Purser, Hartford Environmental Research, UK and S Gwynne, Hughes Associates, Inc., USA

16.31 Assessment of human behavior parameters used in performance-based design approaches for different building use groups [HB2009] [Pages 585 - 590]
Alberto Alvarez, Brian Meacham, Worcester Polytechnic Institute, USA

16.32 Is consideration of evacuation relevant to most fire fatalities? Using the CESARE Coronial Database to investigate the utility of ASET/RSET calculations [HB2009] [Pages 411 - 420]
Ian Thomas, Dorothy Bruck, Michelle Barnett, CESARE, Victoria University, Australia

16.33 A risk contour based methodology towards improving the validity of RSET estimations in ASET/RSET evaluations [HB2009] [Pages 513 - 524]
Mahmut Horasan, Scientific Fire Services Pty Ltd, Australia

16.34 Evacuation for tall buildings in Hong Kong [HB2009] [Pages 597 - 600]
Kendrew Ng, W Chow, The Hong Kong Polytechnic University, China and C Chow, University of Cambridge, UK

16.35 A study on risk-based evacuation safety design method in fire for office buildings [IF2010] [Pages 849-860] *T Tanaka, Kyoto University, D Nii, National Institute for Land and Infrastructure Management, J-i Yamaguchi, Obayashi Corporation, H Notake, Shimizu Corporation and Y Ikehata, Taisei Corporation, Japan*

16.36 PeMMA (People Movement Modelling Analysis): A new methodology for helping to address people's safety in open and enclosed spaces [IF2010] [Pages 1445-1448]
Rodrigo Machado, S Marshall, Mark Anderson, Capita Symonds, UK

16.37 Developing a new fire safety concept for wards in hospital buildings [HB2012] [Pages 551 - 556]
Björn Peters, M Milius, P van de Leur, DGMR Consulting Engineers, The Netherlands

16.38 Analysis of egress calculation assumptions and findings for large shopping centre life safety assessments [HB2012] [Pages 422 - 434]
Mahmut Horasan, R Kilmartin, Scientific Fire Services Pty Ltd, Australia

16.39 Selecting occupant scenarios for deterministic fire safety engineering analysis [IF2013] [Pages 883-892]
Rita Fahy, National Fire Protection Association, USA and D Nilsson, Lund University, Sweden

16.40 Science or science fiction? The use of human behavioral models in fire safety regulation [IF2013] [Pages 553-558]
Elisabetta Carattin, University of Venice, Italy and V Brannigan, University of Maryland, USA

16.41 Essential system choices relevant to the capacity of escape routes in multistorey buildings [IF2013] [Pages 571-576]
Peter van de Leur, M Klein, DGMR Consulting Engineers and N Scholten, Foundation Expert Center Regulations in Building, the Netherlands

Data Generation and Use in Evacuation Modelling and Performance Based Design

Hazard Criteria in Performance Based Design

18.2 A Methodology of Calculating the Risk to People in Building Fires [HB1998] [Pages 401 - 410]
L.Zhao

18.3 Use of the Department of Defense Operational Requirements-Based Casualty Assessment (ORCA) Software System to Determine Occupant Response to Fire and the Extinguishment Process [HB1998] [Pages 769 - 778]
G. Bennett

18.4 Safe tolerability limits for carbon monoxide? A review of the clinical and fire engineering implications of a single, acute, sub-lethal exposure [IF1999] [Pages 709-721]
Don Christian, Home Office, Fire & Emergency Planning Directorate, UK

18.5 Visibility as egress criteria: a review of the literature [HB2001] [Pages 391 - 402]
Joseph M. Fleming, Boston Fire Department, USA

18.6 Sublethal effects of smoke on survival and health [HB2001] [Pages 285 - 296]
Richard Gann, J Averill, K Butler, W Jones, G Mulholland, J Neviaser, T Ohlemiller, R Peacock, P Reneke, NIST/BFRL, J Hall, NFPA, USA

18.7 Assessment of smoke atmospheres where loss of visibility is the limiting hazard [HB2001] [Pages 297 - 308]
Anne Steen Hansen[*] and Atle William Heskestad[**]-[*]Norwegian University of Science and Technology, Norway, [**] InterConsult Group ASA (ICG), Norway

18.8 A study to identify the incidence in the united kingdom of long-term sequelae following exposure to carbon monoxide [HB2001] [Pages 253 - 262]
Professor SD Christian, University of Ulster,UK

18.9 Correlation between physiological index and psychological index during stressful fire experiments [HB2001] [Pages 263 - 274]
Katsuaki Kubota, FUJITA Corporation, JAPAN

18.10 Factors in estimating toxic hazard - People exposed, people who choose exposure, people who can't avoid exposure *[IF2001] [Pages 841-851]*
John Hall, NFPA, USA

Evacuation Strategies (including Phased Evacuation, Defend in Place, Use of Lifts, Escalators)

19.1 Study on feasibility of evacuation by elevators in a high-rise building -- Case Study for the Evacuation in the Hiroshima Motomachi High-rise Apartments -- [HB2001] [Pages 65 - 76]
*Ai Sekizawa[*1], Shinji Nakahama[*2], Manabu Ebihara[*3], Hiroaki Notake[*3], and Yuka Ikehata[*2] *1 National Research Institute of Fire and Disaster,*2 Taisei Corporation, *3 Shimizu Corporation.*

19.2 To evacuate or not to evacuate: Which is the safer option? [HB2001] [Pages 477 - 488]
Hamish A MacLennan, Holmes Fire and Safety Limited, New Zealand

19.3 Highrise evacuation: A questionable concept [HB2001] [Pages 221 - 230]
Guylène Proulx, NRCC, Canada

19.4 Analysis on efficiency of evacuation using elevators in a high-rise building [HB2004] [Pages 377 - 386]
Manabu Ebihara, Ai Sekizawa, University Of Tokyo, Shinji Nakahama,Yuka Ikehata Taisei Corporation, Hiroaki Notake, Shimizu Corporation, Japan

19.5 Emergency egress strategies for buildings [IF2007] [Pages 159-168]
Richard Bukowski, NIST, USA

19.6 Selecting appropriate evacuation strategies for super tall buildings: Current challenges and needs [HB2009] [Pages 41 - 50]
Jeffrey Tubbs, Arup and Brian Meacham, Worcester Polytechnic Institute, USA

19.7 A study on high rise building fire evacuation strategies for Taipei 101 Financial Centre [HB2009] [Pages 51 - 60]
Kuang-Hua Hsiung, Fire Department of Taipei City, Shen-Wen Chien, Po-Ta Huang, Central Police University and Chiung-Hsuan Tseng, Fire Department, Taoyuan County, Taiwan

19.8 Lifts for evacuation – Human behaviour considerations [HB2009] [Pages 73 - 84]
Emma Heyes, Arup Fire, Australia and Michael Spearpoint, University of Canterbury, New Zealand

19.9 Investigating the use of elevators for high-rise building evacuation through computer simulation [HB2009] [Pages 85 - 96]
Michael Kinsey, Edwin Galea, Peter Lawrence, University of Greenwich, UK

19.10 The use of elevators for egress (Discussion Panel) [HB2009] [Pages 97 - 110]
Guylène Proulx (Convener and Moderator), National Research Council Canada, Canada, Emma Heyes, ARUP Fire, Perth, Peter Johnson, ARUP Fire, Melbourne, Australia, Glen Hedman, University of Illinois at Chicago, Jason Averill, National Institute of Standards and Technology, Jake Pauls, Jake Pauls Consulting Services, USA and David McColl, Otis Elevator Company, Canada

19.11 Extended model of pedestrian escalator behaviour based on data collected within a Chinese underground station [HB2009] [Pages 173 - 182]
Michael Kinsey, Edwin Galea, Peter Lawrence, University of Greenwich, UK

19.12 Study on availability and issues of evacuation using stopped escalators in a subway station [HB2009] [Pages 183 - 194]
Hiroyuki Kadokura¸ Tokyu Research Institute, Inc , Ai Sekizawa, University of Tokyo, Wataru Takahashi, ING Co Ltd, Japan ,Naoko Okada, Yuji Hasemi, Shuji Moriyama, Kazutaka Hirakawa, Kota Takemori, Takahiro Hebiishi, Yunqin Lu, Waseda University, Japan

19.13 Study on phased evacuation through the analysis of total evacuation drill in a high-rise office building [IF2010] [Pages 1461-1466]
Ai Sekizawa, T Sano, H Kadokura, D Ooiwa, Tokyo University of Science, Japan

19.14 Modelling evacuation in a cinema complex: Validation study and comparison between different egress strategies [HB2012] [Pages 435 - 446]
Nicolas Henneton, CTICM, N Dreuille, K Van Niel, LCPP, France

19.15 Modelling human factors and evacuation lift dispatch strategies [HB2012] [Pages 386 - 397]
Michael Kinsey, E Galea, P Lawrence, University of Greenwich, UK

19.16 A risk perception analysis of elevator evacuation in high-rise buildings [HB2012] [Pages 398 - 409]
Axel Jönsson, J Andersson, Brandskyddslaget AB, D Nilsson, Lund University, Sweden

Evacuation and Design of Transportation Systems

Trains

20a.1 Evacuating an overturned smoke filled rail carriage [HB2001] [Pages 135 - 146]
E.R. Galea & S. Gwynne, Fire Safety Engineering Group, University of Greenwich, UK

20a.2 An evacuation simulation method for a high speed passenger train [HB2009] [Pages 613 - 618]
Jorge Capote, Daniel Alvear, Orlando Abreu, Mariano Lázaro, Arturo Cuesta,
University of Cantabria, Spain

20a.3 Uncontrolled vs controlled emergency procedures in high speed passenger trains [IF2010] [Pages 813-824]
Jorge Capote, D Alvear, A Cuesta, University of Cantabria, Spain

20a.4 Evacuation from trains – Risks and measures [HB2012] [Pages 472 482]
Lena Kecklund, M Arvidsson & S Petterson, MTO Safety AB, Sweden

20a.5 The development and validation of a rail car evacuation model [IF2013] [Pages 1023-1034]
Edwin Galea, D Blackshields, P Lawrence, K Finney, D Cooney, University of Greenwich, UK

Tunnels

20b.1 Integration of human behaviour in the improvement of safety in French road tunnels [HB2004] [Pages 249 - 256]
Marc Tesson, Sylvie Lavedrine, Centre D'études Des Tunnels (CETU), France

20b.2 Towards developing an understanding of human behaviour in fire in tunnels [HB2004] [Pages 215 - 228]
T J Shields, Karen Boyce, FireSERT, University of Ulster, UK

20b.3 Assessment of road tunnel fire safety design based on emergency response and standard operating procedures for tunnel fires [HB2004] [Pages 239 - 248]
Shen-Wen Chien, Tzu-Sheng Shen, Pin-Yi Tseng, Li-Te Fang, Yi-Hui Huang, Yu-Chun Chien, Chung-Ching Chen, Central Police University, Kuang-Hua Hsiung, Fire Department Of Taipei City, Po-Ta Huang, Ta-Jing Fire Safety & Risk Management Consultancy Co., Ltd. Taiwan

20b.4 Adapting the road tunnel safety devices to the users [HB2009] [Pages 375 - 386]
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20b.5 Human behaviour in tunnel accidents [HB2009] [Pages 607 - 612]
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20b.6 Human behavior in road tunnel fires: Comparison between egress models (FDS+Evac, STEPS, Pathfinder) [IF2010] [Pages 837-848]
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20b.7 Decision making and evacuation in road and rail tunnels [HB2012] [Pages 495 - 505]
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20b.8 Train evacuation inside a tunnel: An interview study with senior citizens and people with disabilities [HB2012] [Pages 346 - 358]
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20b.9 Optimising the arrangements for the evacuation of users from a road tunnel - the example of the Caluire Tunnel (Le Grand Lyon) [HB2012] [Pages 517 - 529]
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20b.10 Social influence in a virtual tunnel fire – influence of passive virtual bystanders [HB2012] [Pages 506 - 516]
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20c.1 Way Finding in an Underground Space [HB1998] [Pages 563 - 572]
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20d.1 School bus evacuation: Research to practice [HB2009] [Pages 623 - 626]
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20e.1 AASK - Aircraft Accidents Statistics and Knowledge: A Database of Human Experience In Evacuation, Derived From Aviation Accident Reports [HB1998] [Pages 509 - 518]
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20e.2 Coping with aircraft emergencies and building fires: some exploratory qualitative (grounded theory) studies of the personal experiences of people involved in two types of emergencies [HB2004] [Pages 257 - 266]
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20e.3 An investigation of passenger exit selection decisions in aircraft evacuation situations [HB2009] [Pages 421 - 432]
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20f.1 The Behaviour of Passengers during Fires on Board Passenger Ferries [HB1998] [Pages 309 - 318]
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20f.2 Study on evaluation of escape route in passenger ships by evacuation simulation and full scale trials, *[IF2001] [Pages 865 - 876]*
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20f.3 Fire and evacuation risk assessment for passenger ships [IF2004] [Pages 365 - 374]
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Fire Safety Attitudes, Education and Training

Emergency Planning and Preparedness