### **Curriculum Vitae (summary)**

G. Keith Still BSc PhD FIMA FICPEM SFIIRSM FIPM FHEA MAE was born in Aberdeen and attained a BSc in Physical Sciences at the (then) Robert Gordons Institute of Technology. His PhD "Crowd Dynamics" in 2001 created a new science, combining risk analysis with crowd behaviour in both crowd models and crowd simulations. He is a visiting Professor at University of Suffolk and also teaches at Breda University of Applied Science (Holland). Keith has over 30 years of consulting experience across a range of international crowd safety and risk analysis environments and has advised on crowd behaviour, crowd risks and crowd safety considerations for events of 500 people to 3,000,000 people. He has published two books on the subject of Crowd Safety and Crowd Risk Analysis "Introduction to Crowd Science" and "Applied Crowd Science".

His project/consulting work includes planning for the Royal Wedding (UK, 2011), Hajj projects, (Saudi Arabia, Jamarat 2000 - 2005, Makkah 2000 - 2013), Olympic Events (Sydney 2000, London 2014), New Year Events (London, Sydney, Dubai), Canada Day (Ottawa).

Prof. Still was a regular speaker at the UK Cabinet Office Emergency Planning College (EPC) from 1999 - 2014 where he developed and delivered a range of teaching/training modules for crowd safety in places of public assembly, festivals and mass gatherings and built and complex spaces.

Keith developed a Foundation degree module, and a BA (Hons) degree module, in Crowd Science (Crowd Safety), at Bucks New University. A MSc course (100% online) in Crowd Safety and Risk Analysis at Manchester Metropolitan University and a Degree Module (Minor) at Breda University of Applied Science (Holland).

He developed (and delivers) APEL (accredited prior experiential learning) short courses in Crowd Safety and Risk Analysis, delivered internationally (UK, USA, Canada, Australia, Holland, Belgium, Germany, Ireland, Saudi Arabia, New Zealand, Dubai and Hong Kong).

He currently develops and hosts a range of Crowd Safety and Risk Analysis courses online (GKSED.com) including a "Public Event Commanders Course (mandatory training for Police Commanders UK and New South Wales, Australia), a CV-19: Place Management course (developed for the Institute of Place Management), a Fundamentals of Crowd Safety (Level 3) and the Introduction to Crowd Science Course (Level 5). He also developed a MSc in Crowd Safety and Risk Analysis at Manchester Metropolitan University with over 100 international students and graduates.

Prof. Still is a Fellow of the Institute of Mathematics and its Applications (FIMA), a Fellow of the Institute of Civil Protection and Emergency Management (FICPEM), a Specialist Fellow of the International Institute of Risk and Safety Management (SFIIRSM), a Fellow of the Institute of Place Management (FIPM) and a Fellow of the Higher Education Academy (FHEA) and a Member of the Academy of Experts (MAE)

#### Expert witness cases

(D) London, UK. Night club, overcrowding, report and court attendance

- (P) London Underground, UK. Overcrowding, personal Injury, report and analysis
- (E) Senate House Committee, USA. Capitol building evacuation, report and testimony

- (P) New York State USA. Personal injury, report and analysis, court testimony
- (D) Nottingham, UK. Crowd crush, fatalities, report and analysis
- (P, J) Birmingham, UK. Crowd crush, personal injury, report and analysis
- (E) Hillsborough Inquiry, UK. Mass fatalities, technical advisor, report and analysis
- (P) Duisburg, Germany. Crowd crush, mass fatalities, report and analysis
- (P) London, UK. Crowd crush, personal injury, report and analysis
- (P) Chicago, USA. Crowd crush, personal injury, report and analysis, deposition
- (P) Las Vegas, USA. Crowd incident, personal injury, report and analysis, deposition
- (17 cases)
- (D) Memphis, USA. Crowded spaces, personal injury, report and analysis
- (P) Scotland, UK. Crowd control, personal injury, report and analysis
- (E) Durham, UK. Night club, fatality, report and analysis
- (P, J) Victoria, Australia. Crowd crush, personal injury, report and analysis (Falls Festival)
- (E) Florida, USA, crowded space, personal injury
- (E) NI, UK, Fatalities, police report and analysis
- (P) Florida, USA, crowd crush, personal injury (2 cases)
- (P) Texas, USA, crowd crush, fatalities
- (P) Northern Ireland, personal injury
- (D) Israel, Mass fatalities, Expert Report
- (D) London, UK. Fatalities

(Defence/Defendant, Prosecution/Plaintiff, Expert advisor, Joint expert)

### Education, professional qualifications, and publications

- BSc in Physical Sciences (majoring in Physics)
- PhD (Crowd Dynamics) Interdisciplinary Mathematics from Warwick University
- Fellow of the Institute of Mathematics and its applications. (FIMA)
- Visiting Professor of Crowd Science Bucks New University (2010 2016)
- Regular Visiting Speaker at Easingwold (the UK Cabinet Office Emergency Planning College 1999 2014)
- Member of Mensa for over 30 years
- Fellow of the Institute of Civil Protection and Emergency Management (FICPEM)
- Specialist Fellow of the International Institute of Risk and Safety Management (SFIIRSM)
- Professor of Crowd Science Manchester Metropolitan University (MMU 2014 2020)
- Member of the Expert Witness Institute (MEWI until Nov 2020)
- Fellow of the Institute of Place Management (FIPM)
- Visiting Professor of Crowd Science at the University of Suffolk
- Fellow of the Higher Education Academy (FHEA)
- Member of the Academy of Experts (MAE from Nov 2020)

## **Publications:**

- Still G. K. New Computer system can predict human behaviour response to building fires. Fire 84 (January 1993), 40-41
- Still G. K. Towering Inferno New Scientist (Supplement April 1993).
- Still G. K. New Insights into Crowd Behaviour It's Fractal. Focus November (1994).
- Still G. K. Simulating Egress using Virtual Reality a perspective view of simulation and design. IMAS Fire Safety on Ships symposium (May 1994).

- Still G. K. The Secret Life of crowds. Focus (June 1996)
- Still G. K. Last word, mind the gap. New Scientist (March 20th 1999).
- Reynolds, L. Fielden, I, Still, G. K, Stewart, I. "Wirequakes a question of seismology" with Len Reynolds and Ian Stewart a paper comparing earth and wire quakes (Wire Industry, December 1999).
- Still G. K. Crowd Dynamics. PhD Thesis, Mathematics department, Warwick University. (August 2000) click *here*
- Still G. K. Optimising Office Egress. Web based publication (Sept 2001)
- Still G. K. "Agincourt" Chapter in book "Battlefield Detectives" ISBN 0-233-05083-3
- Still G. K. "Review of Pedestrian and Evacuation Simulation" Int. J. Critical Infrastructures, Vol. 3, Nos. 3/4, 2007 click *here*
- Still G. K. "Safety in Numbers" iSquared Magazine (2009) click here
- Still G. K. "Crowd Dynamics" Article in Move (2012) click *here*
- Still G. K. "Introduction to Crowd Science" (2013). Taylor Francis click <u>here</u>
- Kroll, Still, Neuman, Graham and Griffin "Acute forces required for fatal compression asphyxia: A biomechanical model and historical comparisons" Medicine, Science and the Law. April 2017 - click <u>here</u> for the paper
- Still, Impact Journal of Operations Research, "Crowd science and crowd counting" March 2019
- Still, K. et al., 2020. Place crowd safety, crowd science? Case studies and application. Journal of Place Management and Development, pp.218–22.
- Parker, C. & Still, K., 2020. Proposing the lower bounds of area needed for individuals to social distance across a range of town centre environments, Institute of Place Management (working paper)
- Still, Papalexi "Place crowd safety, crowd science? Case studies and application" Journal of Place Management and Development, 2020. Emerald Publishing Limited 1753-8335 DOI

# https://www.emerald.com/insight/content/doi/10.1108/JPMD-10-2019-0090/full/html

- The Safe Management of Persistent Standing in Seated Areas at Football Stadia. Final report for the SGSA by CFE Research With Professor Geoff Pearson and Professor Keith Still 2021 <u>https://sgsa.org.uk/wp-content/uploads/2021/06/The-management-of-persistent-standing-Final-report.pdf</u>
- Still G. K. "Applied Crowd Science" (2021). Taylor Francis click *here*
- Reynolds, L. Fielden, I, Still, G. K, Stewart, I. "Wirequakes a question of seismology" with Len Reynolds and Ian Stewart a paper comparing earth and wire quakes (Wire Industry, December 1999).
- Still G. K. Crowd Dynamics. PhD Thesis, Mathematics department, Warwick University. (August 2000) click <u>here</u>
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- Still G. K. "Review of Pedestrian and Evacuation Simulation" Int. J. Critical Infrastructures, Vol. 3, Nos. 3/4, 2007 click <u>here</u>
- Still G. K. "Safety in Numbers" iSquared Magazine (2009) click here
- Still G. K. "Crowd Dynamics" Article in Move (2012) click <u>here</u>
- Still G. K. "Introduction to Crowd Science" (2013). Taylor Francis click *here*

- Kroll, Still, Neuman, Graham and Griffin "Acute forces required for fatal compression asphyxia: A biomechanical model and historical comparisons" Medicine, Science and the Law. April 2017
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- Still, Papalexi "Place crowd safety, crowd science? Case studies and application" Journal of Place Management and Development, 2020. Emerald Publishing Limited 1753-8335 DOI <u>https://www.emerald.com/insight/content/doi/10.1108/JPMD-10-2019-0090/full/html</u>
- The Safe Management of Persistent Standing in Seated Areas at Football Stadia. Final report for the SGSA by CFE Research With Professor Geoff Pearson and Professor Keith Still 2021 <u>https://sgsa.org.uk/wp-content/uploads/2021/06/The-management-of-persistent-standing-Final-report.pdf</u>
- Still G. K. "Applied Crowd Science" (2021). Taylor Francis click *here*