



Institution of Fire Engineers (SA)

Online AGM/Seminar & Workshops

10th & 11th September 2020

Fire Behaviour ... can we manage it?



PROGRAMME

Times	Thursday 10 th September 2020
Annual General Meeting IFE Members only	
11:00 - 13:00	Annual General Meeting IFE Members only 1. Apologies 2. Minutes of the previous AGM 3. Matters arising from the Minutes 4. Secretary/Treasurer Report 5. General Assembly Representative Report 6. Council voting results 7. Outgoing Presidents Address 8. Inauguration of new President 9. Incoming Presidents Address 10. General / Discussion & Close
Seminar Day 1	
14:00 – 15:00	Research – the Orphan of Fire Services Education and Training <i>presented by Mike Webber</i> - MIFireE M.Soc.Sci (Psych) Cum Laude, BA Hons (Psych) Cum Laude The field of fire research is often seen as the preserve of fire test laboratories and the application of the scientific experiment as high level research in which independent variables are defined and manipulated to observe the outcome on the dependent variable. This may be one of the reasons why research methodology and data analysis, common to many other professional disciplines, is largely ignored in fire education and training. The national fire statistics in South Africa are questionable, there is no data on firefighter injuries and deaths and there is no idea of how well the fire protection industry is doing in their clients' opinions. This is largely because of the lack of training and knowledge about the value of data, and how to properly collect and analyse it due to a lack of training. This paper explores different forms of research available to fire services and the fire protection industry, and ways in which it can bring value to the industry and potential solutions to this current deficit.
15:00 – 15:15	Interactive discussions on the Orphan of Fire Services Education and Training with Mike Webber
BREAK	
15:30 – 16:30	Wildland / Urban Fire Interface <i>presented by Bruce Varner</i> - Fire Chief (retired), CFIFireE, CFO International President IFE Recent disasters around the world have revealed that traditional fire protection and emergency services responses have been overwhelmed. Losses have been tragic and historically costly. A better approach is needed. This paper will present some new case studies, the lessons learned and suggestion for improved proactive efforts – a <i>fire engineering</i> approach. Delegates will gain an excellent update and insight from a senior USA-based presenter, who will also lead and interact in discussions relating to problems with historical approaches and the benefits of new approaches.
16:30 – 17:00	Interactive discussions on Wildland /Urban Fire Interface - <i>Bruce Varner</i>
Seminar Day 2	
Friday 11th September 2020	
08:30 – 9:15	Understanding and Modelling Human Behaviour in Fire <i>presented by Natalia Flores Quiroz</i> MSc(Fire), BScEng(Electrical) As our buildings get larger and larger we need to make sure people can escape in time. To this end various computer models have been developed to try predict how long it would take people to leave the building, stadium or high-rise apartment block, when a fire breaks out. This presentation gives an overview of human behaviour including: (a) how to model human behaviour, (b) how people behave in fire, (c) factors that influence behaviour, and (d) evacuation models that can be used.
09:15 – 09:30	Interactive discussions on Understanding & Modelling Human Behaviour in Fire. Natalia Flores Quiroz
BREAK	
PROGRAMME SUBJECT TO CHANGE	



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Times	Friday 11 th September 2020 Continued
09:45 – 10:30	Using Scale Models for Understanding Fire Behaviour <i>presented by Vignesh Narayanan</i> MSc(Fire), BEng (Mechanical) Full-scale fire tests are very expensive and difficult to carry out, meaning that researchers, investigators and product developers may wish to try and conduct scaled-down experiments. However, fire behaviour does not scale down easily, and attention has to be paid regarding what aspect you are trying to scale (heat release rate, ventilation, flame length, etc.) such that the experiments can give insight into what you are seeking to understand. This presentation gives an overview of the modelling of fire using reduced scale experiments, including some recent tests conducted.
10:30 – 10:45	Interactive discussions on Using Scale Models for Understanding Fire Behaviour - <i>Vignesh Narayanan</i>
10:45 – 11:30	Fire Modelling – Friend or Foe? <i>presented by Dr Antonio Cicione</i> PhD, BEng Advances in computer power and software have given engineers the tools needed to model fire and smoke behaviour in complex buildings. This can assist in making buildings safer, and highlight what might happen during a fire incident. However, engineers need to be careful with the “black boxes” that computational fluid dynamics (CFD) tools often are. This talk gives an overview of CFD modelling, how it works, assumptions required and where care should be taken.
11:30 – 11:45	Interactive discussions on Fire Modelling – Friend or foe? <i>Dr Antonio Cicione</i>
BREAK	
13:00 – 13:45	Can Structural Engineers Learn to Speak Fire? <i>presented by Dr Richard Walls</i> PhD MSc G.D.E. BSc.Eng Pr.Eng BTh Structural engineers need to be involved with the fire safety engineering process. The final line of defence in fire safety is to ensure that a building remains standing after all other systems have failed or are no longer effective. Unfortunately most South African structural engineers know very little about fire design. This paper gives an overview of the basis of structural fire design, such that fire engineers can learn what services structural engineers may be able to offer, and how architectural freedom can be provided without breaking the project budget.
13:45 - 14:15	Interactive discussions on Can Structural Engineers Learn to Speak Fire? <i>Dr Richard Walls</i>
14:15 – 15:15	Ethics – a Core Competency in the Technical and Engineering Sciences <i>presented by Mike Webber</i> MIFireE M.Soc.Sci (Psych) Cum Laude, BA Hons (Psych) Cum Laude, BA The technical and engineering fields are defined not only by technology and science, but by human processes of value judgements and ethical decision-making. Professional development begins with technical competence, but which must then be informed by ethical decision-making. As such, the ability to engage in ethical decision-making is core to the application of technical and engineering processes. Engineers are frequently faced with competing demands of technical excellence, adherence to “Best Practice”, innovative thinking, cost containment and client pressures and demands. This paper explores the various ethical systems, the nature of a Fiduciary Duty, the “Public Good” and the seven principles underlying ethical decision-making.
BREAK	
15:30 – 16:15	Firefighter Safety <i>presented by Bruce Varner</i> - Fire Chief (retired), CFIFireE, CFO International President IFE From intelligent aggressive firefighting operations to command, control and accountability, to firefighter survival, to tactical fire scene leadership and building construction as well as SCBA and related technological development and standard establishment, Bruce has been there from day one. He is also well known in the USA from his countless hours of teaching around the country and his tireless work with NFPA committees. This paper will highlight some main points from these experiences with regard to recent firefighter deaths in South Africa, thus providing delegates with key points for preventing future tragedies.
16:15– 17:15	Interactive discussions on Firefighter Safety - <i>Bruce Varner</i>