# Focal award: Fire engineering skills hub

## List of Expressions of interest

| | Project Lead | Organisation of Project Lead | Institutions Involved | Details of proposed focal award |
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| | Name | Institution Name | Institution Name | Summary |
| 1 | Tracy Bradford | University of Lancashire | University of Lancashire<br>Ulster University<br>Imperial College London<br>University of Manchester<br>University of Strathclyde<br>Bangor University | The UK Fire Engineering Skills Hub (UK-FESH):<br>UK-FESH will build on our well-established portfolio of Energy Institute-accredited fire engineering programmes creating a national centre for postgraduate education, doctoral training, continuing professional development, and professional competence. Working in partnership with universities, industry, regulators, Fire and Rescue Services, and professional bodies, the Hub will strengthen UK fire engineering capability.<br>Representing all UK nations, we will create a collaborative network to support consistent, high-quality skills development and knowledge exchange. Building on established L7/8 postgraduate certificates, micro-credentials and professional qualifications, UK-FESH will bring together the expertise of partners, employers, regulators and service providers to ensure national and international impact. Responding directly to the competence and workforce challenges highlighted by the Grenfell Tower Inquiry and subsequent building-safety reforms, UK-FESH will align education, training and research with evolving industry needs. Activities will span 6 interconnected themes: Fire Dynamics and Experimental Fire Science; Structural Fire Engineering; Human Behaviour and Evacuation; Digital Fire Engineering and Emerging Technologies; Fire Strategy and Regulation; and Leadership, Ethics and Professional Practice.<br>These activities will develop a sustainable pipeline of highly skilled professionals, researchers, and future leaders, advancing UK fire engineering profession. |

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| 2 | Jose Torero | University College London | University College London<br>University of Edinburgh | The UK Fire Engineering Skills Hub: Education, Professional Practice and Research:<br>The Hub will build the national capability for a competent, sustainable and regulated UK fire engineering profession. Delivered by an Edinburgh–UCL partnership with industry, fire and rescue services and professional bodies, it will integrate (1) a four-year, cohort-based doctoral programme; (2) new/enhanced L7 taught programmes with flexible delivery; and (3) credit-bearing L7 CPD for practising engineers and adjacent professions.<br><br>All provision will be grounded in the Fire Engineers Advisory Panel's Authoritative Statement, with fire safety strategy, professional competence, equitable outcomes and ethical practice at its core, spanning fire dynamics, structures in fire, human behaviour, building safety and risk, protection systems and fire service operations. Taught programmes will have robust admissions standards; curricula aligned with leading international practice and attainment standards consistent with other accredited engineering professions. Doctoral research will address national building safety priorities and directly support engineering practice. CPD bridging pathways will enable structural, civil, mechanical, building services and architectural professionals to work effectively with fire engineers. The Hub will also build academic capacity and shared resources to tackle the national shortage of fire engineering educators. Alongside the Royal Academy of Engineering scholarships, it will create a coherent pathway from recruitment to research leadership. |

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| 3 | Professor Ali Nadjai | Ulster University | Ulster University<br>Northumbria University<br>University of Greater Manchester<br>Kingston University<br>University of Lancashire | FIRE-NEXT: National Hub for Fire Engineering Education, Research and Professional Skills:<br>FIRE-NEXT will address UK fire-engineering skills gaps through doctoral research and professional training. Five universities contribute: UU in fire testing, structural fire/design, compartmentation, fire science/dynamics, disability evacuation and fire psychology; NU in structural fire and modern methods of construction (MMC); UGM in fire-retardant materials, flammability and fire-gas analysis; KUL in modelling, radiative heat transfer, and spray and water-mist suppression; ULAN in fire dynamics, flame and façade spread, and evacuation. The consortium will address social, economic, policy and regulatory factors, sensor-rich urban preparedness and response, and innovation and commercialisation. FIRE-NEXT links material evidence to building performance through testing, modelling, structures, human behaviour and AI. The hub will support consortium PhD research and assessed CPD via online, laboratory, work-based and block-release learning, summer schools and workshops. Four-year PhD cohorts will combine training, joint supervision and research on net-zero buildings, resilience and other FIRE-NEXT themes. In Year 1, students will select tailored Level 7 modules from existing provision at UU and ULAN.<br>Industry and fire-and-rescue partners will shape research challenges and testing needs, provide case studies, datasets, mentoring and placements, and help translate findings into practice. Shared resources, validated data and university–industry links will sustain a skills network. |
| 4 | Hua Zhong | London South Bank University | London South Bank University<br>University of Birmingham<br>Nottingham Trent University | FIBS Hub: UK Fire Engineering and Building Safety Skills Hub:<br>The FIBS Hub establishes an interdisciplinary Level 7 and doctoral fire engineering training ecosystem aligned with the Fire Engineers Advisory Panel's Authoritative Statement.<br><br>The Hub integrates LSBU's core strengths in building services engineering, smoke ventilation, and environmental control with Birmingham's expertise in advanced materials, structural performance, and metallurgy, alongside NTU's leadership in human behaviour, AI, emergency services policy, and commercialisation (CBIT).<br>Doctoral Training Programme: Delivers 18+ PhD/EngD studentships across two 4-year cohorts. Research themes combine advanced materials resilience, CFD smoke control, AI-driven fire risk modelling, human evacuation dynamics, and lifecycle |

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| | | | | building safety strategy, backed by joint academic-industrial co-supervision and industry placements (e.g., Bureau Veritas, Arup, WSP, BRE).<br><br>Level 7 & CPD Provision: Co-creates accredited, credit-bearing postgraduate modules, PG Cert/Dip pathways, and stackable micro-credentials. Tailored conversion and bridging routes enable building services, civil, and mechanical engineers to upskill in regulated fire safety practice. Delivered flexibly with CIBSE, SFE, and NFCC alignment, incorporating annual commercialisation bootcamps, ethical professional conduct, and sustainable business models. |
| 5 | Steve Gwynne | London and South East Group (University of Greenwich) | London and South East Group (University of Greenwich<br>Imperial College London<br>King's College London | Fire Engineering Skills Hub: The London FSE Hub:<br>London offers an environment essential for a national Fire Safety Engineering (FSE) Hub: universities, consultancies, regulators, and responder expertise, alongside infrastructure and connectivity. Although London-hosted, it will serve UK FSE, with partner universities providing complementary strengths, and multiple routes into FSE.<br><br>The Hub will provide postgraduate education for practitioners; e.g. human response, evacuation modelling, fire dynamics/CFD, and the regulatory environment, with emerging issues (e.g. vulnerable populations, sustainable technologies, battery fires, wildfires, timber buildings, FSE ethics and AI).<br>Hub partners have a track-record of developing the UK FSE workforce, including CPD courses that have trained ~1000 practitioners, produced 50+ PhD and ~25 MSc/Meng graduates from FSE programmes.<br><br>The Hub will build from the historically IFE-accredited MSc programme at LASE (University of Greenwich) by hosting partner modules and expanding on long-standing CPD offers. Doctoral programmes will enable supervisory teams across partner universities to build cohort communities, with overlapping cohorts sharing learning through our masters programmes.<br><br>The goal is to provide CPD that delivers a short-term uplift in industry capability, MSc programmes that broaden the expertise of existing FSE and pathways for BSc students to enter the profession; and doctoral programmes that generate the research needed to support future developments of the FSE sector. |

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| 6 | Xu Dai | University of Liverpool | University of Liverpool<br>University of Sheffield<br>University College London | FIRE-Pathways: Fire Engineering Education and Skills Pathways Hub:<br>Our UK Fire Engineering Skills Hub will create critical pathways for professional fire engineers from civil and mechanical engineering streams, while providing flexible routes for existing fire industry practitioners to upskill their competencies. University of Liverpool will develop a new Fire Engineering Pathway by 2028/29 in its MSc Sustainable Civil and Structural Engineering, in full-time and part-time capacity, building upon successful Level 5 CPD delivery. It will comprise three new modules (Fire Dynamics, Fire Modelling, and Fire Safety Design) alongside aligned Level 7 CPD units. University of Sheffield will develop a Master's-level Fire Engineering pathway for Mechanical Engineers and upgrade existing CPD to Level 7 in Structural Fire Engineering. It will incorporate two modules in Fire Science and Fire-Safe Design, with students participating in a large multi-disciplinary capstone group project to create and apply a Fire Safety Strategy.<br>Fire-Pathways will also establish a shared doctoral cohort of PhD studentships across the HEIs, addressing critical areas within fire safety engineering, including external wall fire testing and instrumentation, built environment risk, mass timber fire safety, and structural fire resilience of modern construction. Industry match funding will expand the cohort of PhD students. UCL will mentor the consortium, sharing specialist expertise in Fire Engineering education for training and reskilling the next generation of fire engineers. |
| 7 | Finian McCann | Loughborough University - School of Architecture, Building and Civil Engineering | Loughborough University | FIRES: Fire Innovation, Resilience and Education for Safety :<br>Loughborough University builds on the School of Architecture, Building and Civil Engineering's extensive experience in advanced built-environment education, cohort-based doctoral training and researcher development, and Pyrology's industry leading fire engineering expertise. At Level 7, the Skills Hub develops postgraduate provision to support specialist MSc-level learning, continuing professional development and upskilling for practitioners entering or progressing within fire engineering. This will combine core scientific and engineering principles with regulatory, human, digital and professional practice themes, allowing participation by learners from diverse disciplinary backgrounds.<br><br>The doctoral hub will lead a structured cohort-based training environment, drawing on Loughborough's cross-School experience of delivering and contributing to Centres for Doctoral Training, its leadership of C-DICE, and its role |

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| | | | | within UKCRIC. Doctoral researchers will receive advanced technical training alongside interdisciplinary skills in testing, modelling, risk, regulation, communication, ethics and industry engagement.<br><br>These will be deliberately interconnected, enabling shared taught modules, industry-led sessions, specialist short courses and cross-cohort activities. This will create a coherent national training pipeline from professional development through to research leadership, while ensuring that provision remains responsive to emerging technical, regulatory and skills needs. |