

## **Information on Postgraduate Research Scholarship - Ref: VCS-FLAS-01-21**

**Faculty:** Faculty of Engineering & Science

**Department:** Computing & Mathematical Science

**Lead Supervisor:** [Dr John Ewer](#)

**Project Title:** Numerical modelling of external cladding fires in High-Rise Buildings – fire performance and mitigation strategies

**Project Description:** The Grenfell Tower fire highlighted systemic failures in provision of fire safety for high-rise dwellings, resulting in a devastating fire that caused 72 fatalities. HCLGC estimates that the fire safety repair costs will be £15BN for high-risk buildings, with some 2000 buildings, in the UK alone, having some form of flammable cladding.

The primary cause of fire severity was the use of a combustibile ACM cladding material. However, systemic failures in construction, lack of understanding of fire spread mechanisms, and inappropriate firefighting procedures contributed to the inability to contain the fire and safely evacuate the residents. This project aims to identify critical failures exemplified by the Grenfell fire and perform in-depth numerical studies of selected issues to determine the impact/efficacy of appropriate mitigations that demonstrably improve the response to and outcome of such fires.

This will include, but is not limited to, issues associated with material choices (i.e. flammable ACM panels) for cladding, fire breaks as remedial/temporary mitigation for at-risk buildings, adaptation of firefighting procedures to better protect stair cores and investigation of issues associated with 'stay put'. The successful applicant will first undertake a comprehensive review of the diverse issues exemplified in the Grenfell Tower disaster, which will include UK fire authorities' perspectives. They will then numerically and comprehensively investigate identified critical issues using CFD-based fire modelling. A key output of the project will be the development of comprehensive guidance reports for firefighters, the construction industry and for regulators, based on the research findings, as well as writing journal papers to disseminate the research.

The proposed research will have a significant impact on the understanding and impact/importance of the key issues that made the Grenfell fire so challenging to life whilst also supporting efforts for legislative, regulatory, and procedural change that will help prevent or mitigate future disasters.

The world-renowned Fire Safety Engineering Group at the University of Greenwich is looking to recruit a highly motivated graduate with a suitable fire safety, engineering, physics or mathematical background. You will be working alongside a highly experienced team, known for the quality of their research and creative approach to problem solving. For more information about the group, see [fseg.gre.ac.uk](http://fseg.gre.ac.uk)

**Duration:** 3 years, Full-Time Study or 6 years, Part-Time

**Bursary available (subject to satisfactory performance):**

Year 1: £15,609 (FT) or pro-rata (PT) Year 2: In line with UKRI rate Year 3: In line with UKRI rate

In addition, the successful candidate will receive a contribution to tuition fees equivalent to the university's Home rate, currently £4,500 (FT) or pro-rata (PT), for the duration of their scholarship.

International applicants will need to pay the remainder tuition fee for the duration of their scholarship.

This fee is subject to an annual increase.

<b>Person Specification of Essential (E) or Desirable (D) requirements:</b>	
<b>Criteria:</b>	<b>E or D</b>
<b>Education and Training:</b>	
<ul style="list-style-type: none"> <li>1<sup>st</sup> Class or 2<sup>nd</sup> class, First Division (Upper Second Class) Honours Degree or a taught Master's degree with a minimum average of 60% in all areas of assessment (UK or UK equivalent) in a relevant area to the proposed research project</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>For those whose first language is not English and/or if from a country where English is not the majority spoken language (as recognised by the UKBA), a language proficiency score of at least IELTS 6.5 (in all elements of the test) or an equivalent UK VISA and Immigration secure English Language Test is required, unless the degree above was taught in English <b>and</b> obtained in a majority English speaking country, e.g. UK, USA, Australia, New Zealand, etc, as recognised by the UKBA.</li> </ul>	<b>E</b>
<b>Experience &amp; Skills:</b>	
<ul style="list-style-type: none"> <li>Previous experience of undertaking research (e.g. undergraduate or taught masters dissertation)</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>Experience of CFD modelling in a related area</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>Experience of modelling of fire related phenomena</li> </ul>	<b>D</b>
<ul style="list-style-type: none"> <li>Familiar with C++ programming or other similar programming language</li> </ul>	<b>D</b>
<b>Personal Attributes:</b>	
<ul style="list-style-type: none"> <li>Understands the fundamental differences between a taught degree and a research degree in terms of approach and personal discipline/motivation</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>Able to, under guidance, complete independent work successfully</li> </ul>	<b>E</b>
<b>Other Requirements:</b>	
<ul style="list-style-type: none"> <li>This scholarship may require Academic Technology Approval Scheme approval for the successful candidate if from outside of the EU/EEA</li> </ul>	<b>E</b>
<ul style="list-style-type: none"> <li>A PhD project research proposal that is related to the research area</li> </ul>	<b>D</b>
<ul style="list-style-type: none"> <li>The scholarship must commence before 1 February 2022</li> </ul>	<b>E</b>

**Closing date for applications: *midnight UTC on 30 October 2021***

**For further information contact: *Dr John Ewer E-mail: [j.ewer@gre.ac.uk](mailto:j.ewer@gre.ac.uk)***

**Making an application:**

Please read this information before making an application. Information on the application process is available at: <https://www.gre.ac.uk/research/study/apply/application-process>. Applications need to be made online via this link. **No other form of application will be considered.**

All applications **must include** the following information. **Applications not containing these documents will not be considered.**

- **Scholarship Reference Number (VCS-FLAS-01-21)**– included in the personal statement section together with your personal statement as to why you are applying
- **a research proposal related to the subject topic \***
- **a CV including 2 referees \***
- **academic qualification certificates/transcripts and IELTS/English Language certificate if you are an international applicant or if English is not your first language or you are from a country where English is not the majority spoken language as defined by the UK Border Agency \***

*\*upload to the qualification section of the application form. Attachments must be a PDF format.*

Before submitting your application you are encouraged to liaise with the Lead Supervisor on the details above.