

School of Architecture, Building and Civil Engineering

POST-DOCTORAL RESEARCH ASSOCIATE

Systemic Enablers for Circular Economy in Construction

REQ230053

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Job description: context

The UKRI-funded Interdisciplinary Circular Economy Centre for Mineral-based Construction Materials (ICEC-MCM) brings together seven academic partners and a large group of external stakeholders, to provide leadership to the construction sector in the transition to a Circular Economy (<https://www.ucl.ac.uk/circular-economy-centre-for-construction-minerals/>).

As part of the ICEC-MCM, Loughborough University is looking for a dynamic and dedicated individual to conduct research on Systemic Enablers for Circular Economy in Construction.

Construction is one of the top 3 sectors of the UK economy. It is responsible for 8% of GDP and 10% of both UK employment and greenhouse gas emissions. Construction minerals are by far the largest material resource flow globally. In the UK, we use them at a rate of more than half a million tonnes per day, and they comprise more than 60% of UK waste. Meanwhile, new infrastructure, as a proportion of total new construction, has doubled over the past 20y, and the National Infrastructure & Construction Pipeline projects £650 billion investment in infrastructure over the next 10 years. Yet the construction industry faces serious challenges with accessing materials while also reducing its greenhouse gas emissions and other environmental impacts.

We are, therefore, collaborating with world-leading experts at University College London, Universities of Leeds, Loughborough, Sheffield and Lancaster, Imperial College London and the British Geological Survey, and a network of national and international stakeholders from across the construction industry, to support the transition to a Circular Economy for this sector. Our research will be undertaken by 15 multidisciplinary research groups, each anchored around a post-doctoral research project. Overall, the academic collaboration includes 25 world-class academics,

15 post-doctoral researchers, 30 doctoral students and 30 MSc students, representing more than 15 disciplines. All our activities will be undertaken in interaction with a dynamic Stakeholder Interest Group of more than 50 members, representing the whole value chain and life cycle for construction materials. Our exciting programme of work will lead to actionable solutions that will create economic value from minimising use of energy and virgin raw materials, and progress towards the United Nations Sustainable Development Goals. The portfolio of activities has a total budget of more than £8M.

The Post-doctoral Researcher conducting research on 'Circular Economy Systemic Enablers' for mineral-based construction materials will be at the core of one of the 15 research groups in this prestigious and influential collaboration. Working as part of a multidisciplinary team of academics, post-doctoral researchers, PhD students and industry experts, they will have primary responsibility for conducting work that has been designed in collaboration with the wider research teams. The academic research is expected to be followed by a one-year placement with an industrial partner, for practical implementation of the academic findings.

Research and teaching in the School of Architecture, Building and Civil Engineering (ABCE) is driven by 80 academic staff, 34 technical and clerical support staff, 40 contract researchers and over 120 doctoral students. The ABCE School benefits by having academic staff from a wide variety of backgrounds, with a resulting rich diversity of perspectives.

The undergraduate programmes include Architecture, Civil Engineering, Construction Engineering Management, Commercial Management and Quantity Surveying, Architectural Engineering and Design Management, Air Transport Management, and Transport and Business Management. In all courses, the academic content is directly aligned to the needs of the industry and there is a high level of sponsorship in our portfolio of programmes. Our record of graduate employment is second to none and we have been ranked 1st or 2nd in the National Student Survey for the last 6 years. Further information is available at: <http://www.lboro.ac.uk/departments/abce/>.

The international standing of our research is exemplified by our growing portfolio of collaborations with other leading universities and research institutes worldwide. These include: the UNSW Sydney, University of California at Berkeley, MIT, Chongqing, Hong Kong, Iowa State, Oklahoma State, RMIT, Georgia State and Penn State.

We are equally proud of our collaborations with industry such as HS2, Mace, Skanska, Aecom, Arup, Willmott Dixon, BRE, Anglia Water and many others, as well as influential organisations such as the Construction Leadership Council (CLC), Constructing Excellence, BSI and others. Built Environment research is increasingly informing government policy through, for example, the

Department for Business, Energy and Industrial Strategy and The Committee on Climate Change, and working with for organisations such as the NHS, HS2, Network Rail and others. For more on our research, please go to: <http://www.lboro.ac.uk/departments/abce/research/>

Job Description

Job Grade: Specialist and Supporting Academic Grade 6

Job Duties and Responsibilities

Systemic Enablers for Circular Economy in Construction

A comprehensive framework for driving Circular Economy in construction comprising a Circular Economy business strategy and objectives, opportunities, challenges, value proposition and creation, and circularity indicators, is required to support the supply chain for mineral-based construction materials and drive wider uptake of Circular Economy principles. While some individual construction product manufacturers have begun to take steps toward material efficiency closing loops, the construction sector has not undertaken the changes required at the business model level for a true transition to a Circular Economy.

The Post-doctoral Research Associate will research and assess 'Systemic Enablers for Circular Economy in Construction' leading to the development of a framework for proposing changes to the practices of businesses, including business models, throughout the whole value chain and system to remove barriers and create market support for the adoption of new circular materials/technologies/systems that will support these new business practices.

The objectives of the Post-doctoral Research Project are:

1. Assess opportunities and barriers for the adoption of Circular Economy principles by businesses in all parts of the supply chain for mineral-based construction materials.
2. Capture stakeholders' Circular Economy requirements.
3. Identify critical success factors for the implementation of Circular Economy for mineral-based construction materials.
4. Devise a Circular Economy Systemic Enablers' Framework for mineral-based construction materials and corresponding Circular Economy actions.
5. Plan implementation of the Circular Economy Systemic Enablers' Framework in an industrial case study.

It is expected that the Post-doctoral Researcher will:

1. Advise and contribute to discussions regarding research by other members of the wider team, including other post-doctoral researchers, doctoral and MSc students.
2. Participate in organisation of, and present their work at, quarterly meetings and workshops.
3. Participate in formal quarterly research group meetings (as well as more frequent informal meetings) and prepare quarterly reports according to the funding requirements.
4. Take a lead role in advising and mentoring at least two undergraduate or Masters' projects, whose objectives will support those of the Post-doctoral Research Project.
5. Publish the project results in high quality academic journals.
6. Undertake a one-year placement in industry.

The successful candidate will also:

- Formulate detailed work plans and be responsible for managing the day-to-day running of the project.
- Develop quantitative and qualitative methods for data collection, validation, and dissemination in relation to Systemic Enablers for Circular Economy in Construction.
- Maintain and enhance close relationships with project partners and relevant stakeholders.
- Package all data sets and models in a form suitable for open-access sharing.
- Contribute to project promotion and public engagement events.
- Ensure health and safety requirements are met for all activities.
- Work effectively with relevant administrative, technical and research staff in the School and across the University.
- Represent ICEC-MCM at UK and overseas events.
- Engage in training programmes in the University, which are consistent with your needs and aspirations and those of the project team and ICEC-MCM objectives.
- Carry out other specific duties as may be reasonably requested by the project leaders and that are commensurate with the nature and grade of the post.

Due to the collaboration's dispersed membership and set of activities, and the limitations imposed by the COVID-19 pandemic, the successful candidate must be fully competent in all the necessary tools and platforms to enable efficient and professional communication at all times, and confident to communicate virtually.

The appointment is expected to be available full-time until 15th December 2024. A 20% longer part-time appointment at 80% of full time can be considered if this helps with the appointee's work-

life balance. Office space for the postholder will be provided at the School of Architecture, Building and Civil Engineering at Loughborough, but home-working may be encouraged.

Organisational Responsibility

Reports to Professor Mohamed Osmani

Person Specification

A: Application

I: Interview

| Criteria | Essential or Desirable | Application / Interview |
|--|------------------------|-------------------------|
| Qualifications, experience and knowledge | | |
| PhD in a relevant field or MSc degree with at least four years of relevant experience | Essential | A |
| Understanding and experience in applying sustainability strategies at organizational or /and project level | Essential | A/I |
| Understanding of Circular Economy concept and principles | Essential | A/I |
| Commercial understanding of stakeholder interests in Circular Economy | Essential | A/I |
| Experience and understanding of the construction supply chain | Desirable | A/I |
| Current or recent Circular Economy experience in the construction sector | Desirable | A/I |
| Experience in the development and implementation of business models. | Desirable | A/I |
| Experience in the production of technical/research reports and/or guidance documents | Essential | A/I |
| Excellent understanding and experience of quantitative and qualitative data collection and analysis. | Essential | A/I |

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|---|-----------|-------|
| A good publication record, commensurate with the applicant's career stage | Desirable | A |
| Skills and abilities | | |
| Evidence of a scientifically rigorous approach | Essential | A/I |
| Excellent IT skills in Microsoft Office, including Outlook, Excel, Word, and MS Teams as well as the Internet | Essential | A |
| Good English oral communication skills | Essential | I |
| Good English written communication skills | Essential | A |
| Good interpersonal skills | Essential | A / I |
| Strong analytical, creative and problem-solving skills | Essential | A / I |
| A methodical and accurate approach to work with attention to detail | Essential | A / I |
| Ability to work without direct supervision | Essential | A / I |
| Ability to assimilate and act on advice from the supervisors and other team members | Essential | A / I |
| Ability to manage own workload to meet deadlines | Essential | A / I |
| Ability to respond creatively to resolve unanticipated challenges | Essential | A / I |
| Personal attributes | | |
| An understanding of and commitment to the United Nations Sustainable Development Goals | Desirable | A / I |
| Confidence to present well-prepared information | Essential | A / I |
| Openness to academic collaboration and sharing of information | Essential | A / I |

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| An appreciation of the contributions made by a multidisciplinary and diverse team | Essential | A / I |
| Taking pride in delivering an excellent service to colleagues, students, partners and the wider community | Essential | I |
| Anticipating and avoiding potential strategic flaws and risks in plans | Essential | I |
| Making inclusivity, diversity and (inter)cultural awareness core to actions and decision-making for self and team | Essential | I |

Conditions of Service

The position is full-time and fixed-term until 15th December 2024 (or as soon as possible thereafter). Salary will be within Specialist and Supporting Academic Grade 6, (£32,348 to £42,155 per annum), at a starting salary to be confirmed on offer of appointment. Subject to annual pay award.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Grade 6 and above staff details of which can be found [here](#).

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family- friendly policies which are available at <http://www.lboro.ac.uk/services/hr/leave-absence/family-leave/>

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: <http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html>)

In addition, the University is supportive, wherever possible, of flexible working arrangements. We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see <http://www.lboro.ac.uk/services/hr/athena-swan/>