

Research Associate in Domestic Energy Performance Monitoring

Job Ref: REQ220001

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

School/Department summary

Research and teaching in the School of Architecture Building and Civil Engineering (ABCE) is driven by 63 academic staff, 34 technical and clerical support staff, 40 contract researchers and over 120 doctoral students. The 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.

At MRes level we train the next generation of multi-disciplinary researchers in energy demand. At MSc level, we offer programmes in Low Energy Building Services Engineering and Low Carbon Building Design as well as in Water and Waste Engineering, Construction Management, Transport Policy and Business Management. These programmes are all accredited by the Professional Institutions. The EPSRC Centre for Doctoral Training in Energy Demand will support over 50 PhD students.

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 may be found from - <http://www.lboro.ac.uk/departments/civil-building/>

In the 2014 Research Excellence Framework, the School was ranked fifth in the Architecture and Built Environment Unit of Assessment with 87% of the work judged as either "world leading" or "internationally excellent". Importantly, this was achieved whilst still returning 100% of staff; world class research pervades the School. The research environment was ranked first overall; Loughborough is the best place in which to build a career in energy research.

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.

For more on our research go to: <https://www.lboro.ac.uk/departments/abce/research/>

Project Description

The project research associate will work within the Building Energy Research Group, in the School of Architecture, Building and Civil engineering at Loughborough University. The Group of ten academic staff undertakes world-class research in the fields of building physics, energy demand and indoor environments. They operate laboratory and full-scale experimental facilities and undertaken modelling and data analysis to support the achievement of a zero-carbon and healthy built environment.

The Research Associate (RA) will work on the development of the new domestic energy assessment methodology for the Standard Assessment Procedure (SAP) 11. The SAP model is used to produce the Energy Performance Certificates for UK homes and support UK energy policy. The RA will be part of the Loughborough University team and work in collaboration with the Building Research Establishment, Sustenic, Kiwa and the University of Strathclyde. Partners include the Department for Buildings Energy and Industrial Strategy and the Chartered Institution of Building Services Engineers. The Loughborough team is responsible for discovering information, revealing and analysing existing datasets and managing the operation of new field studies. The field trials will be conducted primarily during the winter of 2022/23. The trial will provide the data upon which new SAP11 algorithms can be built and tested.

Job Description

Job Grade: Specialist and Supporting Academic Grade 6

Job Purpose

The primary purpose of the post is to manage the collection of data from occupied UK homes. The RA will thus: identify the needs of a new field study in occupied homes; determine the scale and scope of the study; recruit appropriate households; determine the required monitoring, surveys and questionnaires; guide those undertaking the field work; and manage and maintain the cohort. It is anticipated that the study will include: measuring energy demands and internal temperatures; physical surveys of properties; and questionnaire to capture the composition of the households. The resulting data will be cleaned, structured and analysed and reports and academic papers generated.

Job Duties

Research

- With project partners, to develop a monitoring protocol, survey tools and questionnaires.
- To project-manage the field trial – including liaising regularly with project partners, sub-contractors and households.
- To ensure the successful installation of monitoring equipment, the completion of site surveys and the delivery of a household questionnaire.
- To clean, archive and analyse the data from the field trials.
- To maintain the cohort of households, trouble shoot and provide participant feedback.
- To review existing data and models on energy demand for heating, hot water and electricity demand in UK homes.
- To understand how space heating, domestic hot water and electricity demand is currently modelled in the UK SAP
- To document existing data sets derived from field work that quantify energy demand in UK homes
- To produce project reports and academic outputs.

General

- Be responsible for conducting the day to day running of the project.
- Formulate detailed plans for the project based on broad guidance from the project team.
- Feed back to the Loughborough team on progress, to make recommendations for next steps.
- Travel to attend meetings and make presentations to the wider project working group and to external stakeholders, such as BEIS and CIBSE.
- Support and enhance relationships with partners and collaborators.
- Write up regular progress reports and present outcomes to all investigators and collaborators.
- Attend and contribute to conferences.
- Write research papers suitable for publication in high quality academic journals.
- Contribute ideas for new research and enterprise directions.
- Maintain confidentiality at all times and ensure that intellectual property agreements, ethical requirements and health and safety rules are not violated.
- Assist the academic staff with the supervision of undergraduate MSc and PhD project work and day-to-day supervision and support of other researchers.

- Where appropriate, to deliver teaching, tutorial and laboratory sessions to students.
- Engage in training programmes in the University (or elsewhere) that are consistent with the needs and aspirations of the project.
- Undertake other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to David Allinson, Reader in Building Physics and Kevin Lomas, Professor of Building Simulation

Person Specification

Your application will be reviewed with respect to meeting the essential and desirable criteria listed below. Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

- 1 – Application
- 2 – Test/Assessment Centre/Presentation
- 3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Background in engineering, science or mathematics	1
	Research experience in building monitoring and measurement.	1,2,3
	Data cleaning, archiving and analysis	1,2,3
	Authoring original work for academic journal papers, conference papers or technical reports	1
Skills and abilities	Management of large multi-partner projects	1,2,3
	Data sensor selection, calibration and deployment.	1,2,3
	Excellent written and oral communication skills	1,2,3
	Self-motivated with ability to meet deadlines	3
	Excellent interpersonal, and organisational skills	2,3
	Writing reports, making technical presentations	1,2
Training	Demonstrate evidence of having undertaken further training	1
Qualifications	PhD (or near completion)	1,3
Other	Commitment to observing the University's Equal Opportunities policy	1

Desirable Criteria

Area	Criteria	Stage
Experience	Field work to monitor energy demands in buildings, especially occupied dwellings.	1,2,3
	Interaction with people for research purposes.	1,2,3
	Understanding of the SAP	1,2,3
	Model validation using empirical data	1,2,3
	Developing proposals for funding from external agencies	1
	Working in a high quality academic research environment	1
	Teaching and / or supervision of students in relevant areas	1
	Working with external commercial and government partners.	1
Skills and abilities	Authoring original work, in the highest quality refereed academic journals	1
	A strong publication track record	1
Qualifications	PhD (or near completion) related to building energy	1,3
Other	Willingness to travel within the UK for project meetings	3

Conditions of Service

The position is full time and fixed term for 22 months in the first instance. Salary will be on Specialist and Supporting Academic Grade 6, (£31,406 - £40,927) per annum, at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's Terms and Conditions of Employment for STAFF GRADES 6 AND ABOVE, 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 can be found [here](#).

The University offers a wide range of employee benefits which can be found [here](#).

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/>

The closing date for receipt of applications is **06 February 2022**.