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**Job Description**

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| Job Title: | Postdoctoral Researcher in Property Flood Resilience |
| Faculty/Professional Directorate: | Science and Engineering |
| Subject Group/Team: | Energy & Environment Institute |
| Reporting to: | Prof Stuart McLelland |
| Duration: | Fixed-term 12 months (External funding) |
| Job Family: | Academic |
| Pay Band: | 7 |
| Benchmark Profile: | Research Band 7 |
| DBS Disclosure requirement: | N/A |
| Vacancy Reference: |  |

**Details Specific to the Post**

**Background and Context**

The University of Hull (UoH) is undertaking a range of projects related to climate change adaptation via transdisciplinary approaches that engage and inform stakeholders and communities, delivering related research and knowledge exchange. The University’s world-renowned Energy and Environment Institute conducts research to better understand flood processes and adapt to the consequences of flooding through societal interventions and physical approaches such as sustainable drainage and natural flood management.

Property-level flood resilience (PFR) measures are a key component in mitigating flood risks for homes and businesses. Products and devices such as flood barriers and flood resistant doors are designed to provide individual properties with improved resilience to flood water. However, there is a paucity of evidence about the effectiveness of PFR solutions and limited research has been directed towards innovation in this area.

With extensive experience in experimental modelling and understanding impacts of climate change on water systems, together with a range of specialist equipment for testing and research, the Energy and Environment Institute is ideally placed to address this issue. To this end, we have recently established a unique innovation and testing environment for PFR products, equipped with a range of high-performance research instrumentation.

Now, together with leading insurer, RSA, part of the Intact Financial Corporation, we are embarking upon work to improve the evaluation, effectiveness and application of PFR measures. We are seeking a suitably qualified postdoctoral researcher with a desire to make a real difference in an under-researched area of vital importance to help take this important work forwards.

This exciting new post will be based in the University of Hull’s vibrant Energy and Environment Institute (EEI) which facilitates collaboration across disciplines and between stakeholders. For further information about the Energy and Environment Institute visit:

<https://www.hull.ac.uk/work-with-us/research/institutes/energy-and-environment-institute.aspx>

### Specific Duties and Responsibilities of the post

Based at the EEI, the postholder will undertake work at our newly-established PFR testing and development facility within the University’s Total Environment Simulator. Reporting to Prof Stuart McLelland and Dr Robert Thomas, the postholder will establish and deliver an active research programme to develop and optimize new testing regimes for flood resilience products, enable PFR needs to be aligned with exposure to flood risk, including GIS analysis of flood depth distributions for homes and businesses at different return periods, and formulate an evidence-based PFR performance rating system.

The successful candidate will devise, organise and manage research and knowledge exchange activity, engaging proactively with partners, businesses and stakeholders to communicate project aims, progress and outcomes. They will be required to present monthly progress updates and to write regular progress reports. Travel may be required to external organisations or to attend meetings/ conferences/workshops relating to the project. The postholder will produce outputs based on the research findings and evidence, which are accessible and useful to stakeholders working in the PFR and insurance sectors and beyond.

With knowledge and understanding of hydraulics and/or hydrology, you will have experience of experiments, fieldwork or numerical modelling, linked to water/flood issues and/or developing successful systems for testing devices/products. You will possess the skills required to analyse, interpret and apply information from large data sets and knowledge of geospatial datasets and experience of GIS-based analysis is also desirable. Working as part of a team, you will be able to liaise effectively with external partners and engage with policy makers and/or external stakeholders. You may also be required to contribute to the supervision of postgraduate students.

The project offers excellent career development opportunities including managing packages of work, speaking/presenting at academic or industry conferences and leading and co-authoring publications.

**GENERIC JOB DESCRIPTION**

The job duties and responsibilities listed below are intended to describe the general nature of the role. The duties and responsibilities and the balance between the elements in the role may change or vary over time depending on the specific needs at a specific point in time or due to changing needs in the department. Candidates should note that there may not be an immediate requirement to carry out all the activities listed below.

### Overall Purpose of the Role

The researcher at this level will be:

* An experienced and professional researcher and will be a subject specialist, drawing upon knowledge gained from postgraduate research and/or working within a Research Band 6 role.
* Associated with a particular project (or projects) and will contribute ideas, and/or enhancement of techniques or methodologies and be expected to take significant initiatives in their work and consult with the Principal Investigator over the details of the project. They will work under supervision and receive academic, pastoral support and guidance which may include specific training, career opportunities and mentoring.

They may contribute to the Department’s teaching, through supervision of projects, overseeing practical classes, or taking small group tutorial classes.

The main focus of the work will involve conducting individual and collaborative research projects under the general guidance of a senior academic or Principal Investigator using new research techniques and methods, analysing and interpreting data and writing up research for publication.

**Main Work Activities**

1. Conduct individual and collaborative research projects to include:

* Using expertise to carry out projects they are working on.
* Contribute to the preparing proposals and applications for external bodies, e.g. for funding and contractual purposes with appropriate support or contribute to the writing of collective bids.
* Use new research techniques and methods.
* Analyse and interpret research data.
* Write up research work of the project and its dissemination through seminar and conferences presentations and publications.

1. Responsible for the management of projects to include:

* Plan and manage own research activity in collaboration with others.
* Manage administrative activities with guidance if required.
* Plan and monitor the work of the project or projects if applicable.

1. Assist with teaching and learning support in own area of study to include:

* Assist in the development of student research skills.
* Assess student knowledge and supervision of projects.
* Supervise and guide final year students.

1. Develop and initiate collaborative working internally and externally to include:

* Build internal contacts and participate in internal networks for exchange of information and to form relationships for future collaboration and to progress their research.
* Develop links and join external networks to share information and identify future potential sources of funding.
* Work with colleagues on joint projects as required.
* Attend and contribute to relevant meetings.

1. Demonstrate evidence of own personal and professional development to include:

* Continually update knowledge and understanding in field or specialism.
* Appraisal, induction and performance reviews.
* Participate in training and development activity.
* Maintain links with professional institutions and other related bodies.
* Collaborate with academic colleagues on areas of shared research interest.

### Additionally the post holder will be required to:

* Fulfil the employees’ duties described in the University’s health and safety policies and co-operate with the health and safety arrangements in place within the department. May be required to undertake specific health and safety roles on request e.g. Display screen equipment assessor, departmental safety officer, fire warden etc.
* Show a commitment to diversity, equal opportunities and anti-discriminatory practices this includes undertaking mandatory equality and diversity training.
* Comply with University regulations, policies and procedures.

**PERSON SPECIFICATION – Research Band 7**

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| **Specification** | **Essential** | **Desirable** | **Examples Measured by** |
| **Education and Training**  Formal qualifications and relevant training | * A PhD in a relevant discipline or significant experience in flooding, GIS or hydraulic experimentation | Evidence of:   * Relevant professional accreditation | Application  Interview  Other |
| **Work Experience**  Ability to undertake duties of the post | Evidence of:   * An emerging track record in an appropriate research field, including, for example, publications, presentations at conferences | Evidence of:   * Peer-reviewed publication of relevant research * Mentoring of postgraduate students * Contributing to funding applications * Experience of working in a product testing and/or certification setting | Application  Interview  Other |
| **Skills and Knowledge**  Includes abilities and intellect | **Evidence of:**   * Knowledge and understanding of hydraulics/hydrology * Ability to lead research projects * Experience of using and sharing large data sets * Responsibility for successful experimental design and implementation * Report writing for specialist and non-specialist audiences | **Evidence of:**   * Knowledge and experience of geospatial analysis with GIS * Participation in networks that seek to promote collaboration * Engagement of external partners * Effective management of resources | Application  Interview  Other |
| **Personal Qualities**  Includes any specific physical requirements of the post – (subject to the provisions of the Equality Act 2010) | * An expectation to positively contribute to University activities and initiatives which may include open days, graduation ceremonies, etc., and have a willingness to undertake administrative activities * Show evidence of collaborative working, particularly on interdisciplinary activities * Evidence of working in an open and transparent way, providing information and communicating effectively with colleagues | * Evidence of Continuous Professional Development * Ability to direct your own research and work independently | Application  Interview  Other |