Candidate Information

Position:	Research Fellow - Re-Wind Project
School/Department:	School of Natural and Built Environment
Reference:	20/108335
Closing Date:	Monday 28 September 2020
Salary:	£33,797 to £40,322 per annum
Anticipated Interview Date:	Friday 9 October 2020 or Wednesday 14 October 2020
Duration:	This is a fixed term post available until 28 February 2022

JOB PURPOSE:

The US-Ireland-Northern Ireland tripartite Project Re-Wind investigates innovative approaches for the reuse and recycling of decommissioned composite material wind turbine blades. The holder of this PDRA will conduct research and complete experiments to determine the residual mechanical properties of the wind blade materials. In addition, the PDRA will conduct structural analyses and full-scale experiments for various designs of structures using the components from the blades. The PDRA will work with a large project team consisting of researchers and academic staff in areas ranging from fundamental mechanics to architecture, GIS and social sciences in three universities in US, Ireland and Northern Ireland plus industrial partners. The PDRA is expected to help coordinate activities between the partners, manage a common file system and conduct tasks relating to research and innovation, technology transfer, training and dissemination activities.

MAJOR DUTIES:

1. Assist the PI and CIs at Queen's University to manage and coordinate activities of the Re-Wind project.
2. Manage and coordinate activities of the Mechanics Thrust of the project.
3. Work with Design Thrust to develop structural details and construction methods for wind-blade re-use applications in the architecture and infrastructure domains.
4. Develop structural models (mechanics, frame, and finite element – as appropriate) of wind blade re-use applications. Identify key failure modes and develop calculations to assess the likelihood of these modes.
5. Assess the residual mechanical properties of composite materials at different locations in the wind turbine blades.
6. Plan, develop and conduct experiments to validate the structural performance of wind-blade re-use applications.
7. Present regular progress reports on research to the funding body, members of the research group and to external audiences to disseminate and publicise research findings.
8. Prepare, in consultation with supervisor, materials for publication in leading international journals and presentations at international conferences.
9. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget.
10. Assist in the coordination of activities carried out by the three universities and industrial partners, organisation of project meetings and documentation, financial control, risk assessment of research activities.
11. Travel to academic partner organisations for project meetings.
12. Travel to relevant fields sites to collect and analyse relevant information and report accordingly.
13. Travel to relevant field sites to dissect and collect sample wind blades for experimental work.
14. Assist the supervision of research students under the direction of the grant holder, where appropriate.
15. Carry out occasional undergraduate supervision, demonstrating or lecturing duties within the post holder's area of expertise and under the direct guidance of a member of academic staff.
16. Read academic papers, journals and textbooks to keep abreast of developments related to the project.

Planning and Organising:

1. Plan for specific aspects of the research program. Timescales range from 1-6 months in advance and contribute to research group planning.

2. Plan for the use of research resources, laboratories and workshops where appropriate.
3. Plan own day-to day activity within framework of the agreed research programme.
4. Plan up to a year in advance to meet deadlines for journal publications and to prepare presentations and papers for conferences.
5. Coordinate and liaise with other members of the research group over work progress.

Resource Management Responsibilities:

1. Ensure research resources are used in an effective and efficient manner.
2. Plan, procure and maintain relevant research equipment.
3. Provide guidance as required to support staff and any students who may be assisting with research.

Internal and External Relationships:

1. Liaise on a regular basis with staff, researchers and students within the PI's research team.
2. Liaise on with other project partners, and deliver tasks specified by the project leaders team.
3. Build internal contacts and participate in internal networks for the exchange of information and to form relationships for future collaboration.
4. Build close links with other project partners and other potential collaborators for exchange of information and to form close partnerships for future collaborations.

ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a relevant PhD.
2. A minimum of three years relevant research experience in:
   - experimental research experience
3. A good publication record in line with stage of career.
4. Ability to contribute to broader management and administrative processes.
5. Contribute to the School's outreach programme by links with industry, community groups etc.
6. Sufficient breadth and depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.
7. Experience of conducting critical analysis.
8. Ability to communicate complex information clearly.
9. Ability to build contacts and participate in internal and external networks.
10. Demonstrable intellectual ability.
11. Ability to assess and organise resources.
12. Must be able to work as part of the project consortium.
13. Willing to travel internationally for meetings, conferences and field work.
14. Coordinate activities between partners in US, Ireland and Queens.
15. Monitor progress of all partners according to agreed schedule.
16. Manage data files for the whole project including US & Ireland partners.

DESIRABLE CRITERIA:

1. PhD in Composites, Civil Engineering or Structural Engineering.
2. Experience of FEA of composites, fatigue analysis, vibration analysis, wind loading
3. Experience of: FEA of complex structures
4. Experience of: Both destructive and non-destructive testing
5. Experience of liaising with researchers at other institutions.
6. Sustainable research interests.
7. Open-minded, be prepared to acquire new skills.
8. Enthusiastic and hardworking.