



School of Computing, Engineering, and the Built Environment Edinburgh Napier University

PHD STUDENT PROJECT

Application instructions:

Detailed instructions are available at :

<https://www.napier.ac.uk/research-and-innovation/doctoral-college/how-to-apply>

Prospective candidates are encouraged to contact the Director of Studies (see details below) to discuss the project and their suitability for it.

Project details

Supervisory Team:

- DIRECTOR OF STUDY: Dr Mina Jowkar (Email: m.jokwar@napier.ac.uk)
- 2ND SUPERVISOR: tbc

Subject Group: Built Environment

Research Areas: Built Environment, Environmental Engineering, Urban Planning

Project Title: Innovative Building Services Renovation in Scottish Zero Emission Neighbourhoods

Project description:

The Energy Efficient Scotland programme outlines the path for our homes, businesses and public buildings to become more energy efficient. The Scottish Government's commitment to reducing carbon emissions and achieving its ambitious climate targets necessitates innovative and practical solutions to address energy consumption in existing buildings [1]. Existing structures are responsible for a significant portion of energy usage and carbon emissions in Scotland [2]. Therefore, this project aims to provide the Scottish government with an efficient building services solution for renovating existing buildings at a neighbourhood level. To achieve this goal, this study also develops a simple digital tool that enables the Scottish government to categorise existing buildings based on their information. This tool takes into account building type, function, heating and cooling loads, local climatic conditions, and more as input, and proposes applicable building services measures, including cost, capacity, and operation of technology (e.g. optimising building envelope, heating/cooling strategies) as output on a neighbourhood scale.

Candidate characteristics

Education:

The applicants should have a first degree or academic background in an Environmental, Construction, or/and Building Services-related disciplines such as Sustainability Engineering, Building Maintenance, Architectural Engineering, Building Services, Sustainability Studies, and Environmental Engineering.

Subject knowledge:

The applicants should demonstrate fundamental knowledge of environmental and social Sustainability, renovation strategies, building maintenance and building services.

Essential attributes:

- Software skills in building performance evaluation
- Modelling, and data analysis
- Applicants from diverse relevant backgrounds are encouraged to apply

Desirable attributes:

- Specific knowledge or experience of working with building physics, environmental monitoring and programming are desirable