



Do you want to innovate in **sustainable building design** and **lifecycle thinking** through a PhD thesis? Join our dynamic research team to develop **circular renovation strategies**, reduce waste and resource pressures, and advance **maintenance** and **reuse** principles. Do you have a master's degree in **architecture, architectural engineering** or a related field? This research challenge awaits you!

We offer a **PhD scholarship** within the Louvain Research Institute for Landscape, Architecture and the Built Environment (LAB) at the Université catholique de Louvain, Belgium.

The PhD scholarship, under the scientific supervision of Professor Émilie Gobbo (LAB), is part of the project Design for Maintaining and Reusing Resources in the Built Environment (DeMaRe) - financed by the UCLouvain - FSR 2024 SPECIAL RESEARCH FUNDS. The doctoral scholarship is initially offered for a period of 2 years, renewable once. Extension of the scholarship to cover the full 4-year duration of the PhD will be subject to evaluation (essentially depending on the progress of the thesis)

THE PROJECT

In light of the construction sector's considerable impact on resource consumption and waste generation, it is imperative to undertake a comprehensive review of current practices. The increase in energy-efficient renovations has resulted in a concomitant rise in material waste, frequently attributable to premature demolitions. In practice, economic and energy efficiency considerations tend to take precedence over the architectural value and environmental



savings of buildings. The circular economy addresses these issues by prioritising the preservation and reuse of materials over demolition.

The objective of the "**Design for Maintaining and Reusing Resources in the Built Environment**" (DeMaRe) project is to address these challenges by integrating the entire life cycle into design, adopting a resource-efficient approach that requires new criteria, gaining a better understanding of the existing building stock in order to develop appropriate solutions, and reducing the environmental impact of buildings by maintaining existing structures and reusing elements. The research project aims to develop and assess renovation strategies by modelling different scenarios in order to define the thresholds for circular renovation with a low impact on resources. This approach should encourage the construction sector's transition towards more sustainable, circular and resilient practices in the face of environmental challenges.

The project will be supervised by Professor Émilie Gobbo (UCLouvain).

ACTIVITIES

You will be required to complete a doctoral thesis within the aforementioned institute (LAB), which forms part of the Sector of Science and Technologies (SST) of UCLouvain. The following activities will be undertaken:

- The **collection and processing of data on the built environment**, including the **characterisation** of buildings, their materials and techniques. Additionally, the development of appropriate renovation scenarios (scenarios-based models) will be carried out, with a particular focus on circular and low-impact solutions.
- Conducting **quantitative and qualitative assessments** of the scenarios-based approaches developed, utilising, referencing and discussing existing tools such as LEVEL(s), GRO, Totem, Simapro or equivalent tools to evaluate the environmental impact across the entire life cycle of the building. This phase will also evaluate the efficacy of current assessment tools with regard to the integration and modelling of reuse and maintenance, with a view to identifying innovative solutions for work on existing buildings in relation to global environmental issues.
- The PhD researcher will have opportunities to participate in **research seminars** and **upskilling workshops** throughout their research work. This will include doctoral training focused on the development and writing of a thesis, as well as the scientific dissemination associated with the research.

QUALIFICATIONS AND SKILLS

Candidates for this position are required to possess the following qualifications:

Essential criteria

1. A master's degree of at least 120 ECTS in architectural engineering, architecture or equivalent, with a top-tier final grade;
2. An interest in the field of environmental sciences circular economy in the built environment ;
3. A final master's thesis with a top-tier grade on a subject relevant to this project;
4. Commitment and ability to work in a team;
5. Good interpersonal and communication skills and the ability to interact with university staff at all levels;
6. The ability to work independently and take the initiative to conduct research;
7. Proficiency in English, as evidenced by English language tests (IELTS, TOEFL, etc.), or secondary or higher education in English.



Desirable criteria

8. Demonstrated skills and/or experience in construction/renovation, and knowledge of construction processes, materials and architectural design, etc.;
9. Demonstrated skills and/or experience in circular design, reuse etc.;
10. Demonstrated skills in building modelling and environmental analysis (e.g. Simapro, Totem, GRO, LEVEL(s), etc.) and/or commitment to further training.
11. Skills and/or proven experience in writing reports and/or scientific articles in English, with precision and rigour;
12. Knowledge of French and a third language (preferably Dutch);
13. Proficiency in the use of standard software for research work.
14. Professional experience in the building, renovation, circular economy or reuse sector is a plus.

WORKING CONDITIONS

You will participate in an innovative research project as part of a dynamic, multidisciplinary research team. The doctoral thesis is project-oriented, allowing a certain flexibility in the organisation of the candidate's work, while ensuring that the requisite deadlines and planning for a doctoral thesis are respected. The research team is primarily based in **Tournai**, with a smaller contingent based in Louvain-la-Neuve (a residency commitment in Belgium is required). The position entails **full-time employment**. Reasonable travel expenses incurred in the course of the project, including those related to meetings and interviews, as well as the cost of public transport season tickets for commuting to and from home, will be covered. You will benefit from a tax-free fellowship, that is nevertheless submitted to social security (coverage depends on the country) The net monthly amount is approximately €2,400 in 2024. The position is that of a full-time research grant for a period of 24 months, renewable once, subject to the candidate meeting the requisite progress criteria for his/her doctorate (e.g. passing the confirmation test).

APPLICATION

The final deadline for applications is the **15th September 2024**, but applicants are invited to submit their candidature **as soon as possible**. Review of applications and eventual interviews of candidates, in fact, will be conducted on a **rolling basis, as soon as applications are received**. The start date is expected to be throughout the month of **January 2025** (depending on required documentation).

To apply for this PhD position, interested candidates need to send the documentation specified below, as an email attachment, to Professor Émilie Gobbo emilie.gobbo@uclouvain.be from whom further information can also be obtained.

DOCUMENTATION REQUIRED

1. A cover letter presenting the motivations for applying to this position;
2. A detailed CV;
3. A response to each of the essential and desirable qualifications and skills listed above;
4. Academic transcripts of the candidate for their Bachelor and Masters Degrees (translated into English if they are not in English or French).
5. Proof of English Proficiency (e.g. IELTS or TOEFL) – Note: applicants with a Bachelor and/or Masters degree from an English-speaking institution are exempt from this, but must provide evidence.

All files should be converted to PDF, presented in the order listed above, and sent as a single file via email to the attention of Professor Émilie Gobbo, emilie.gobbo@uclouvain.be. The file should be named as follows: <LastName_FirstName_DeMaRe>.pdf



Please verify that your file is clearly readable from a conventional PDF Reader.

Selected candidates will be invited to a face-to-face or an online interview consisting of the presentation of their previous research activities or interests (e.g., their master dissertation, preliminary research) and of an open discussion centred on motivations for engaging in such a project. Only shortlisted candidates will be contacted directly. Incomplete applications, or those considered to be out of scope, will not be responded to.

