

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Thijs Reitsma
Student number	4573544

Studio		
Name / Theme	Urban Architecture	
Main mentor	Elsbeth Ronner	Architecture
Second mentor	Sam Stalker	Architecture
Third mentor	Leeke Reinders	Research
Argumentation of choice of the studio	My motivation for this studio is largely based on my interest in the strong connection between architecture and the urban scale, in combination with the freedom for individual exploration of interests that the studio offers.	

Graduation project	
Title of the graduation project	Upcycle Campus Liège: a lively space for work and living, stimulating citizens and creative enterprises in the field of reuse and upcycling to contribute to a local circular economy – shaping the new industrial city
Goal	
Location:	Bressoux, Liège, Belgium
The posed problem,	<p>In Liège, and especially Bressoux, a lot of buildings are left abandoned, therefore failing to comply to the potential of the space and materials and leaving Liège with a negative image. Simultaneously, a lot of new buildings in the area are constructed using purely new materials, seemingly neglecting their direct context and creating a sense of misplacement and gentrification as a result. To create sustainable and culturally fitting architecture, a connection between the local supply and demand of materials should be made, creating a circular building economy. This however requires a different approach to design and material management, raising many new challenges.</p> <p>By introducing and stimulating a new form of industry in Liège around the reuse of existing materials, this circular economy could be boosted, even on a rural scale. By providing people the opportunity to participate in this new economy, this could eventually help to lower the unemployment rate and additionally raise consciousness about possible alternative ways of making products and constructing architecture on a larger scale.</p>

<p>research questions and</p>	<p>Socio-cultural:</p> <ul style="list-style-type: none"> - What is needed to stimulate a small scale society around the topic of reuse and upcycling? - Which architectural methods can be applied to boost a circular economy? <p>Material:</p> <ul style="list-style-type: none"> - Which materials are available in the vacant industrial building stock in Bressoux? - How can be determined which resources are feasible for reuse? - What processes are demanded to reuse reclaimed components and materials in new construction projects? <p>Architectural:</p> <ul style="list-style-type: none"> - How can culturally fitting architecture be created in the context of Bressoux? - What are the main architectural typologies within Bressoux? - By which materials are those architectural typologies defined?
<p>design assignment in which these result.</p>	<p>The problem statement asks for a design that stimulates a local circular economy. The aim is therefore to design a central, visible and easily accessible campus with upcycling as a central theme, both in program and architecture. The campus therefore consists of a central social work place for upcycling crafts, combined with shared facilities. The campus is partially enclosed by work-live units for creative entrepreneurs in the field of reuse and upcycling, with workshop spaces in the plinth and housing above.</p> <p>The central program will be constructed in an existing industrial structure on site, redesigned according to the principle of adaptive reuse. The work-live units are constructed on the open space surrounding the central building and designed through component reuse, harvested from vacant industrial buildings nearby, and Design for Disassembly. As a result, the buildings on the campus function as a showcase of the possibilities of material reuse on a building scale, while the program on the campus promotes upcycling processes regarding smaller scale products.</p>

<p>Process</p>
<p>Method description</p>
<ul style="list-style-type: none"> - Socio-cultural <p>For the socio-cultural part of my research, I aim to investigate examples of small scale societies and economies around a specific topic and try to determine which methods could be applied to creating a stimulating environment around the topic of reuse. This research will mainly be done by conducting literature research and evaluating reference projects.</p> <ul style="list-style-type: none"> - Material inventory <p>For my material research, I first want to investigate the sources for reclaiming materials. This will be limited to buildings of similar size and building typology, ensuring a relevant range of materials. Subsequently, these sites and buildings will be evaluated through comprising a material catalogue of all available resources that are found and their quantities and most</p>

important characteristics. The inventory will mainly be done by field research and archival research, followed by analytical 3D-modelling.

- Methods for material reuse

In order to understand what possibilities lay within the scope of reusing reclaimed resources, the next step will be to investigate and evaluate different methods and processes needed to recover, repurpose or upcycle the inventoried materials. This knowledge will hopefully be obtained by visiting companies that are invested in such activities, such as Rotor DC (BE) and New Horizon (NL). Since the specific knowledge behind reusing materials extends the field of architectural design, additional research will mainly be done by consulting literature.

- Creating sustainable architecture

Subsequently, a methodological research towards the possibilities of designing with these reclaimed resources will be done. Additionally, an investigation of strategies regarding Design for Disassembly will be included to ensure future reuse of the recovered, repurposed or upcycled materials. Both the research of designing with reclaimed resources and the research into Design for Disassembly will mainly be conducted by consulting literature and executing design practice.

- Creating culturally fitting architecture

This final part of the research aims towards exploring the prominent architectural typologies in Bressoux and the materials that define them. This will mainly be investigated by analyzing buildings in the close context of the site and buildings. Together with the chapter above, this will hopefully form the basis for creating culturally fitting and sustainable architecture.

Literature and general practical preference

Visits to/interviews with:

- Rotor DC, Brussels, BE (visit planned)
- New Horizon, Geertruidenberg, NL (interview conducted)
- Lagemaat, Heerde, NL (interview conducted)
- Upcycle Campus, Delft, NL (visited)
- Circulair Staal, Nijverdal, NL
- Other relevant companies and creative enterprises, invested in reusing and upcycling reclaimed materials

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Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The overarching theme of the Urban Architecture Graduation Studio 2022 is 'Scar', referring to the notion of something that once was healed, but somehow still shows marks of its wounded history. In some occasions, a healing process even demands additional donor tissue to be used, leaving behind even more traces of the past and the process of healing. By trying to revive an abandoned site, while creating new architecture with locally reclaimed materials, the aim is to create a architectural scar; a place that is healed through reintroducing activity and material value, created by its own tissue and donor tissue from other 'wounded' sites nearby.

In the context of Liège, I strongly think that there is a lot of potential, in both vacant sites, the existing abandoned structures and the materials they are constructed with. Taking into account the major environmental and economic disadvantages of constructing with virgin resources, I am really eager to investigate the possibilities of using reclaimed materials to create a typology that fits the context of Liège.

By looking at architecture through different scales and approaches, from urban- to material scale and from economy to sustainability, this design approach therefore fits perfectly within the wide scope of the Architecture master track, but simultaneously touches the fields of Building Technology and Urbanism. Even though the focus primarily lays in the field of Architecture, no good architecture is built without somehow connecting to the physical and intangible preconditions.

1. What is the relevance of your graduation work in the larger social, professional and scientific framework.

Throughout the past decades, a lot of research is done into the possibilities of reusing reclaimed building materials as new buildings materials. In the same period, many start-ups invested in putting this research to practice have arose and grown since, building an economy around it. However, a research towards creating such an economy in such a specific context as Bressoux, with high unemployment rates and a high mix of industries and residential functions in such close proximity of each other, seems yet to be made. This research therefore aims to connect the potential of a local circular economy directly to a local context that could use it, while hopefully boosting the concept behind it on a larger scale. By giving new life to the industrial history of Liège and its current negative image, the city can eventually even obtain a positive image as the "new industrial city", taking a major position as the rural economic centre for circular development.