



Construction and temporary occupation of a circular hub and Makerspace

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Introduction

This Interreg NSR ProCirc pilot project is situated in the harbour area of the city of Leuven and spans across two iconic buildings. In 2016 the local authority acquired 'The Mills' site, a former wheat mill complex with adjacent offices, laboratory and residential building. The use of this site is guaranteed for at least 10 years. 'The Silos' were bought by a project development company which offered use of the site's ground floor for temporary occupation until the end of 2022, when it needs to be returned in its original condition. This created an opportunity to answer the need for a circular hub in the city, with space for creative and educational activities. As circular construction is one of 5 priorities in Leuven's 2050 net zero roadmap, the final piece was added to the puzzle.

Procurement process

The temporary nature of the project offered an exceptional opportunity to create an innovative design concept. The circular construction ambitions of the project were:

- Maximum reuse of materials and building elements, avoiding virgin materials.
- Change-oriented design to increase flexibility and shared occupancy.
- Building components should be easily available for high-quality reuse after the temporary occupation. Aiming at maximal reuse in the permanent occupation.
- Durability of materials and construction methods.
- Limited maintenance and operating costs.

The commission was tendered in a competitive procedure with negotiation. In the tender a two-page note was added, explaining the circular



criteria as well as a note on cost-saving measures and the business case. The candidates were asked to illustrate their choice and use of materials in their offer.

Upscaling circular procurement

The city of Leuven considered the Makerspace project as a pilot for circular procurement in construction and temporary occupation, allowing them to implement lessons learned in future projects. To upscale circular construction to common practice, an organisational change process was set up together with Interreg NSR ProCirc. The relevant internal stakeholders were identified, including architects, technical specialists, procurement and legal teams, councillors, management, the financial department, and the circular economy coordinator. These actors discussed opportunities and bottlenecks to upscaling circular construction within the city of Leuven, facilitated by an external consultant. This resulted in a concrete action plan, subscribed to by all parties involved, as well as better understanding of each other's perspective and willingness to collaborate.

Results

- The Makerspace was opened in late 2020. Currently, 44 organisations have signed the participation charter and it is a hive of activity.
- Bearing in mind phased renovation, circular construction methods, budget constraints and the heritage status of the buildings, the design team was to focus on enhancing visibility. This led to a circular facade that can be transformed into a greenhouse, acclimatised sea containers in the Silos, and a modular scaffolding marking the entrance as concrete implementations of circular construction to inspire occupants as well as passers-by.
- Temporary walls were installed with a buyback guarantee from the supplier.
- The city of Leuven has a concrete action plan to upscale circular construction to common practice. They hope to inspire others with their concept of temporary occupation of vacant sites and the circular DNA and functioning of the Makerspace.

Lessons learned

- Make sure there is enough time for the pre-tender phase, allowing for a proper market dialogue. In circular construction the mindset and approach of construction teams are crucial and should be examined. Working with a more linearly oriented team for this project required a lot of effort from the commissioner to ensure that the circular ambitions were met. Overall, innovative processes take time.
- The construction sector is going through a learning curve and the market might not always be ready to provide. For instance, the subcontractor responsible for HVAC (Heating, Ventilation and Air-Conditioning) was unable to provide the renting solution mentioned in the tender, because it was not economically viable.
- There was no additional contract with the contractor, which implies that the award criteria from the BAFO-tender (Best and final offer) were not enforceable. Performance contracts or co-signed ambition documents could be preferable to align parties.
- If certain materials are likely to have a high residual value when your project finishes, make sure to agree on a price or calculation method with your supplier and add the buyback terms to the contract. Independent residual value calculations are currently still very expensive, surpassing the actual residual value of the materials for smaller projects.



Background information

Vaartopia, a programme for urban renewal of the city of Leuven that focuses on occupation of vacant buildings, allowed the city to acquire funds from the Flemish government to temporarily activate both sites. The city wanted to avoid high-end residential development being the only focus and use the funding as efficiently as possible, aiming for long term positive effects.

Parts of 'The Mills' site have been protected scheduled monuments since 2002. Unfortunately, shortly after the purchase by the city, the site was affected by a fire, so damage needed to be repaired before starting the construction of the temporary occupation. 'The Silos', will be converted for residential occupation when handed back over to the development company.

Circular construction is one of 5 priorities in Leuven's 2050 net zero roadmap. Therefore, the central aim was to integrate circularity principles for the temporary occupation and reconversion. Furthermore, the Makerspace was destined to have a circular business model and circularity at the core of its operations. Looking at the history of the Mills site, it was already operationally quite circular. They had their own laundry for flour bags and a garage on site, and the raw materials arrived on site by boat.

In 2018, 'Summer on the Millsite' events were organised to kick off the project. Over 100 organisations showed interest. After this activation phase, the temporary occupation of both sites started taking shape. During this time, the Mills site buildings will be restored in stages. When the project gives way to permanent occupation in the Mills site, the Makerspace should be a solid, circular business.



Photos by: Jan Crab