

PAVING THE WAY FOR LOW CARBON AND CIRCULAR CONSTRUCTION

Commissioned by: Interreg Europe and City of Lund

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This good practice was retrieved from the [Circular Minds](#) project.

SHORT SUMMARY

In 2020, when a school in Lund was about to be demolished, a few employees decided to do the municipality's first reuse inventory. Although the time frame was tight (two months from start to demolition) the project leader and two environmental strategists decided to try out a reuse inventory. To spread the knowledge, a group

of 20 stakeholders conducted the inventory together. Reusable material and items were identified and listed (first in excel sheets and later on in an online tool) and after that an extensive process of finding an offset for each material/item begun.



INTRODUCTION

The City of Lund has a goal that the construction of municipal buildings shall be climate neutral by 2030. To reach this goal, reuse of material on a larger scale is an important part of the puzzle. Reuse of building material comes with many challenges, both internally (for example mindset and resources)

and externally (for example cooperation with contractors).

The procurement policy is currently being updated and will include references to reuse and circularity, emphasizing the importance of the definition of needs before the procurement starts.

PILOT IMPLEMENTATION

Within the organisation, awareness of circular economy principles varied among staff. Over time, the organisation's climate and circular goals encouraged, and in some cases required, employees to increasingly integrate circular criteria in order to help achieve these objectives.

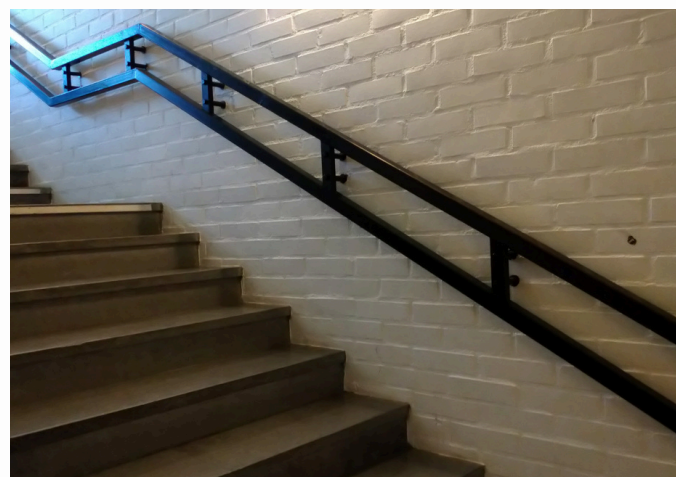
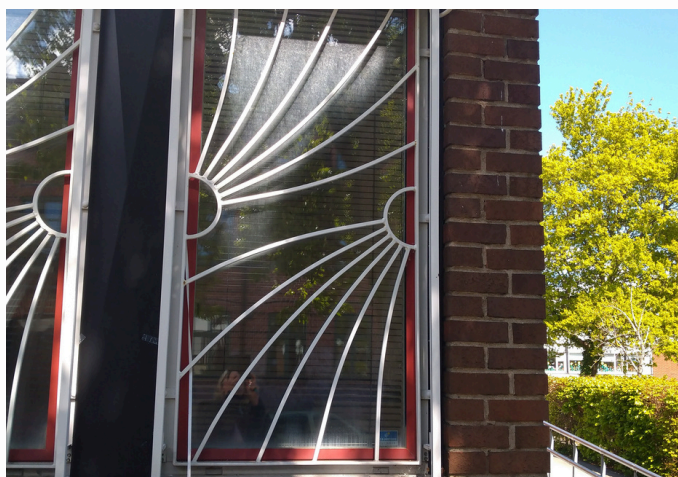
In 2020, when a school in Lund was planned to be demolished, a few municipal employees decided to carry out the municipality first reuse inventory. Since reuse was not included in the contract the project manager and contractor discussed opportunities to identify materials suitable for reuse.

Although the time frame was tight, only about two to three months before the demolition, the team invited 20 internal and external stakeholders, including real estate managers, construction firms, entrepreneurs, cultural heritage experts, outdoor environment specialists,

and researchers to identify valuable materials and determine how they could be reused or redistributed.

Reusable products and materials were listed and matched with potential new uses: some were incorporated into the new school, others were used in different municipal buildings, and some were sold to citizens through a digital flea market.

Efforts were made to measure environmental impacts, but at that time, the municipality lacked adequate tools to calculate CO₂ savings. Since then, new systems have been introduced to enable such assessments. Early estimates, for example for bricks, indicated strong potential for local reuses, either in the same building or at the new construction site. With improved digital tools now available, future projects can better evaluate and optimize reuse outcomes.



AFTER PILOT


Following the pilot project, the city of Lund developed a standardised reuse inventory methodology for all buildings that are going to be renovated, refurbished or demolished. Moreover, new procurement criteria were introduced in tenders, such as waste prevention, design for functionality, deconstruction-friendly design, and a maximum allowed waste per square meter for each project.

The city also introduced climate criteria for buildings, setting a maximum allowable climate impact from construction materials. These criteria are stringent, often making the use of reused materials necessary to meet the targets. For example, projects may need to incorporate reused

bricks, recycled steel, or low-carbon alternatives such as green concrete to comply. The strict climate goals have effectively made reuse a central strategy for achieving Lund's climate neutral ambitions.







The requirements not only increase awareness and ambition within the municipality but also ensures more careful consideration around demolition, design, and the reuse of materials. To support this practice, decisions on materials choices are guided by an LCA tool, ensuring that climate objectives are met in practice and that low-carbon and circular construction becomes a standard across municipal projects

RESULTS

-  The reuse inventory led to the recovery of several valuable materials and products such as metal fences, shelves, limestone, windowsills, and ventilation systems
-  The project demonstrated economic benefits, as keeping materials in-house proved to be cost-effective. A ventilation system valued at €80,000 was reused in another building, and overall, the inventory saved €30,000 – 40,000, even after accounting for additional costs such as dismantling).
-  Approximately 1,600 tonnes of brick were recovered (bricks were crushed to be used as filling material under the new school), and although the CO2 savings were not calculated, the environmental benefits are expected to be significant.
-  The municipality has established a dedicated storage space for reusable materials and products and collaborates with organisations that specialize in reuse.
-  Today, all municipal contracts explicitly include opportunities for reuse, and each project discipline is required to include at least one material type.



LESSONS LEARNT

-  The team only had two to three months before the demolition to do the inventory and select reusable elements which was too short. Future projects should start the inventory at least 6 months in advance to allow sufficient time for planning and coordination.
-  Establishing a digital platform is essential to ensure the smooth transition, storage and distribution of reusable materials.
-  Assigning a responsible person with the right expertise helps coordinate and oversee the reuse process effectively.
-  Involving stakeholders early and maintaining engagement through seminars and continues dialogue strengthens collaboration and builds shared commitment.
-  Clear ambitions and goals are crucial for driving change and keeping teams motivated throughout the process.
-  Although the pilot was not an immediate success, it created valuable lessons and spillover effects into other processes. The Environmental strategist summarised it well by saying *"If we hadn't done it, we would not have come to where we are today."*