

From Waste to value

EXPLORING A SELECTION OF REUSE PROJECTS IN THE NETHERLANDS

Maja Lindborg
Summer 2020

It is the summer of 2020 in the Netherlands. Lockdown has just started to lift. It is okay to take the train again, if wearing a face mask. Restaurants are opening up, for outdoor serving only. Shops are also opening, with very strict maximum capacities. People are not allowed to socialise in groups bigger than 8. If a private person do not follow these rules, he or she can be fined with up to 800 euros.

It is in this context that I am starting my journey to explore sustainable and/or reuse projects in the Netherlands. As one of the forerunners of this type of architecture, the initial list of available projects is long. Covid-19 helps narrowing it down a lot. Private villas are not sensible to visit. A museum with a reused facade is just too far north for a day trip, and most hostels are closed. An office entirely made from reused materials is also closed - people are working from home.

In the end, nine projects were visited, and worked as inspiration and input for my MSc Thesis *Reuse is the new use - Towards the industrial reuse process*. It was my general reflection of the visited projects that it was, and is, an industrial approach to reuse that is needed. Our climate can not depend on small-scale initiatives and a handful of admirable, hard-working enthusiasts. We need a radical, industrialized change towards a circular economy, and we need it now.

Maja Lindborg
Gothenburg, August 2021

PROJECTS VISITED

NDSM werf, Amsterdam-Noord
Biesbosch Museum, Werkendam
Precious Plastic, Eindhoven
Avalbrenngstation, den Haag
de Ceuvel, Amsterdam-Noord
Kringloop Zuid, Maastricht
Book store Dominicanen, Maastricht
Wikkelhouse factory, Amsterdam-Noord
BK Sterk, Delft



Reused ship crates serve as storage boxes at the Biesbosch Museum.

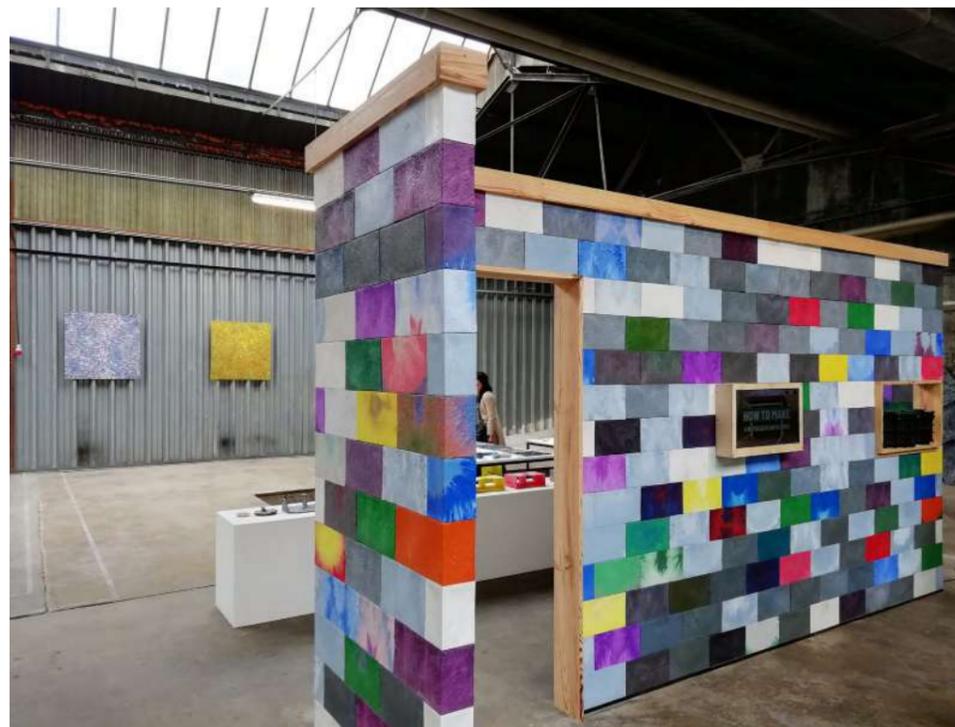
PRECIOUS PLASTIC

[Eindhoven]

Precious Plastic started in 2012 by Dave Hakkens, then a student at Design Academy in Eindhoven. He constructed and built a set of machines and tools that could grind, melt and mold products from old, collected plastic packaging. The idea was to make these recycling machines open source so that anyone could start collecting and recycling their plastic locally. Since then, the Precious Plastic community has spread to all of the world's continents and provide a collective market place where the users themselves can sell everything from their own-developed tools and product descriptions as well as exchanging experiences and how to-guides. The community space in Eindhoven is run by a collective of designers and works as a collection point where locals can drop of their plastics, but it is also a workshop for creating and developing new products and composite materials.



Locals drop of their plastic waste which is sorted according to type of plastic.



A modular, circular brick wall made by recycled plastic.



The plastic packages are grinded into a base material for melting and molding new products.

PRECIOUS PLASTIC
[Eindhoven]



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EASTPAK

A selection of material and product prototypes.

AVFALBRENGSTATION

[den Haag]

ARCHITECT Wessel van Geffen Architects

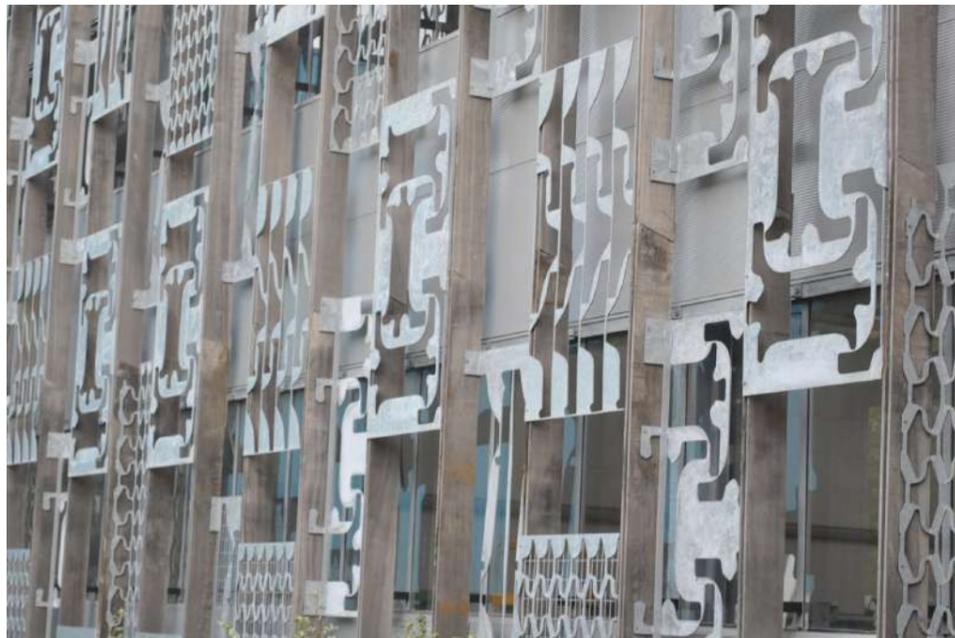
RECYCLING CONSULTANT Superuse studios

This recycling station in central den Haag was designed to be made out of as much recycled materials as possible. The result is a building where everything but the load-bearing steel structure is reused. The facade is made of steel contour plates, which are leftovers from industrial production. The underlying sandwich panels are also reused and the insulation consist of reused rock wool from the demolition of a nearby warehouse.

Apart from the reuse aspect, the building has pv cells for its own energy production, as well as a green roof and rain water collection which is used for cleaning the facility.



The steel plate patterns create a cool effect inside the recycling station.



The steel plates are leftovers from industrial production, where you can see the parts that has been cut out to produce various products.



On distance, the different steel plate patterns create a dynamic yet not chaotic expression for the facade.

DE CEUVEL

[Amsterdam]

TECHNICAL SYSTEMS

Because of its previous usage - and the fact that there used to be an old plant burning garbage nearby - the ground mud is heavily polluted. "Every pollution is basically here", as our tour guide says with a small laugh. To solve this, the park contains lots of native and phyto-remediating plants, and has about 20 ground sample points to check pollution levels over time. The area has no sewage, but rather uses dry toilets, and has a central compost system that they move every year, where the compost is used for the park and garden. There are also 140 solar panels in total, enough to power the office spaces. The café uses about twice as much energy as that, mostly because of the beer coolers... As for greywater, they use a Helofyt system which is a closed system of elephant grass roots placed in layers of gravel and soil, taking up the pollutants in the greywater and making it possible to reuse for irrigation.

FUTURE

As the 10-year lease is getting towards its end, lots of questions have been raised about the future of de Ceugel. According to Marcel, the municipality does not think the target group is diverse enough to prolong the lease - "here are lots of vegan millennials, so to say", he says with a wink. But to demolish everything would cost about 130 000 euro and is therefore way out of the budget, unless a commercial developer is willing to pay to buy the property - which is not likely because of the amount of pollution. It would also be too expensive to move all the buildings to a new area. As such, the future of de Ceugel is...well, up to the future.



The café is situated in the heart of de Ceugel.



The storefront of one of all the small scale creative businesses in de Ceugel.

KRINGLOOP ZUID

[Maastricht]

ARCHITECT SuperUse studios

RECYCLING CONSULTANT Superuse studios

Kringloop Zuid is a recycling centre and second hand store situated in an industrial area in the outskirts of Maastricht city centre. Surrounded by similar shed-like structures, it stands out with its colourful corrugated steel sheet facade, its 40x6 meter curtain wall shopfront and its 25 meter high wind turbine blade sign post - all of which are reclaimed from the area. The steel sheets are discarded leftovers from a steel sheet factory, the windows are from a demolished housing block and the wind turbine blade comes from one of the many wind turbines being dismantled each year. The construction cost ended up being similar to that of a standard depot building.

It was amazing to see such a lively element in an otherwise very grey and homogenous area, where all industrial buildings look the same. Interiorwise, the different-sized windows composing the large curtain wall create a beautiful patchwork against the outside sky. It makes sense for a recycling center to be built out of reclaimed materials, but the typology of industrial buildings itself pose an interesting potential when it comes to reuse - they are very standardized in size and shape, and have lower demands in terms of energy and aesthetics.



The 25 meter high reused wind turbine blade marks the entrance of the building and is visible for several kilometers.

KRINGLOOP ZUID

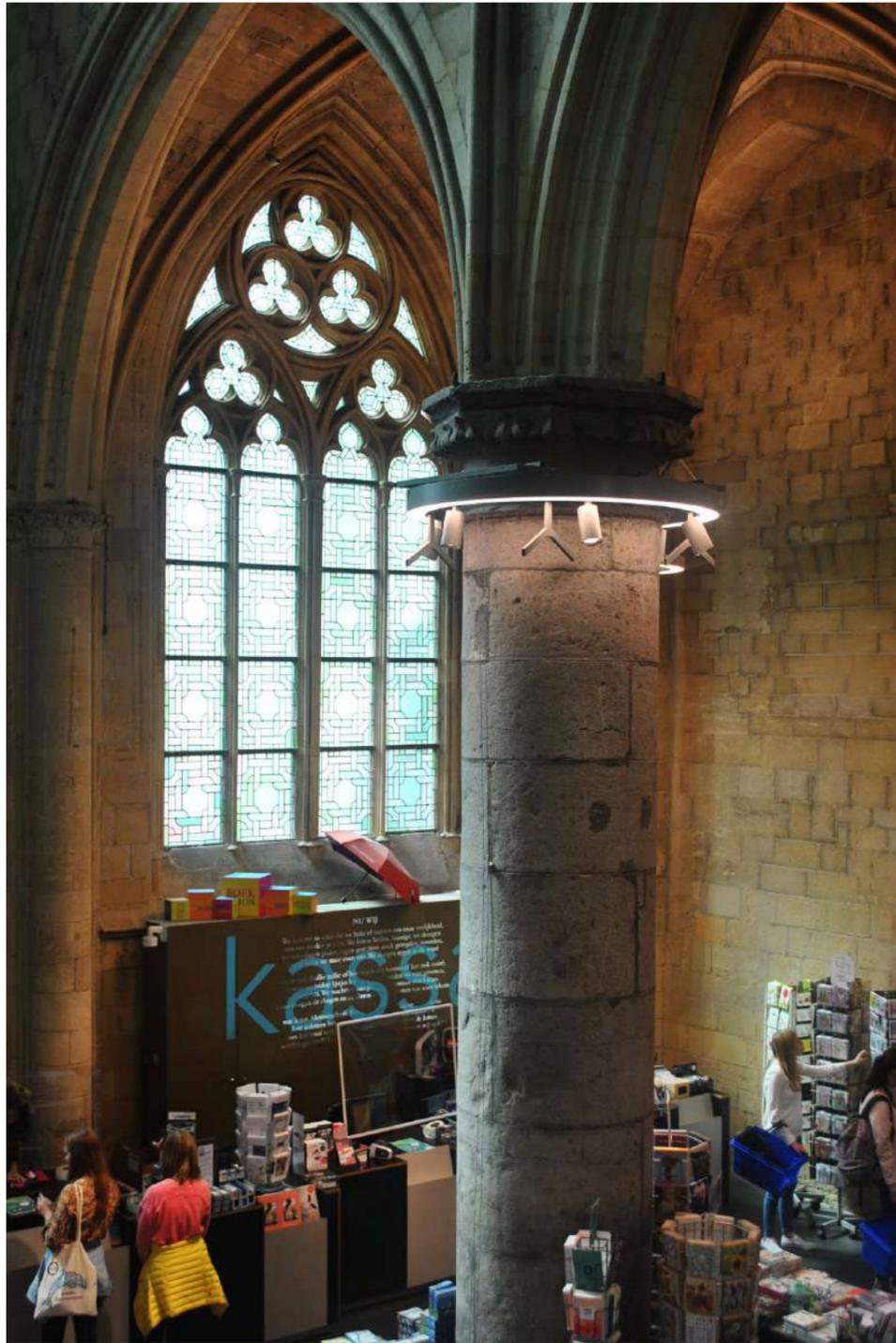
[Maastricht]



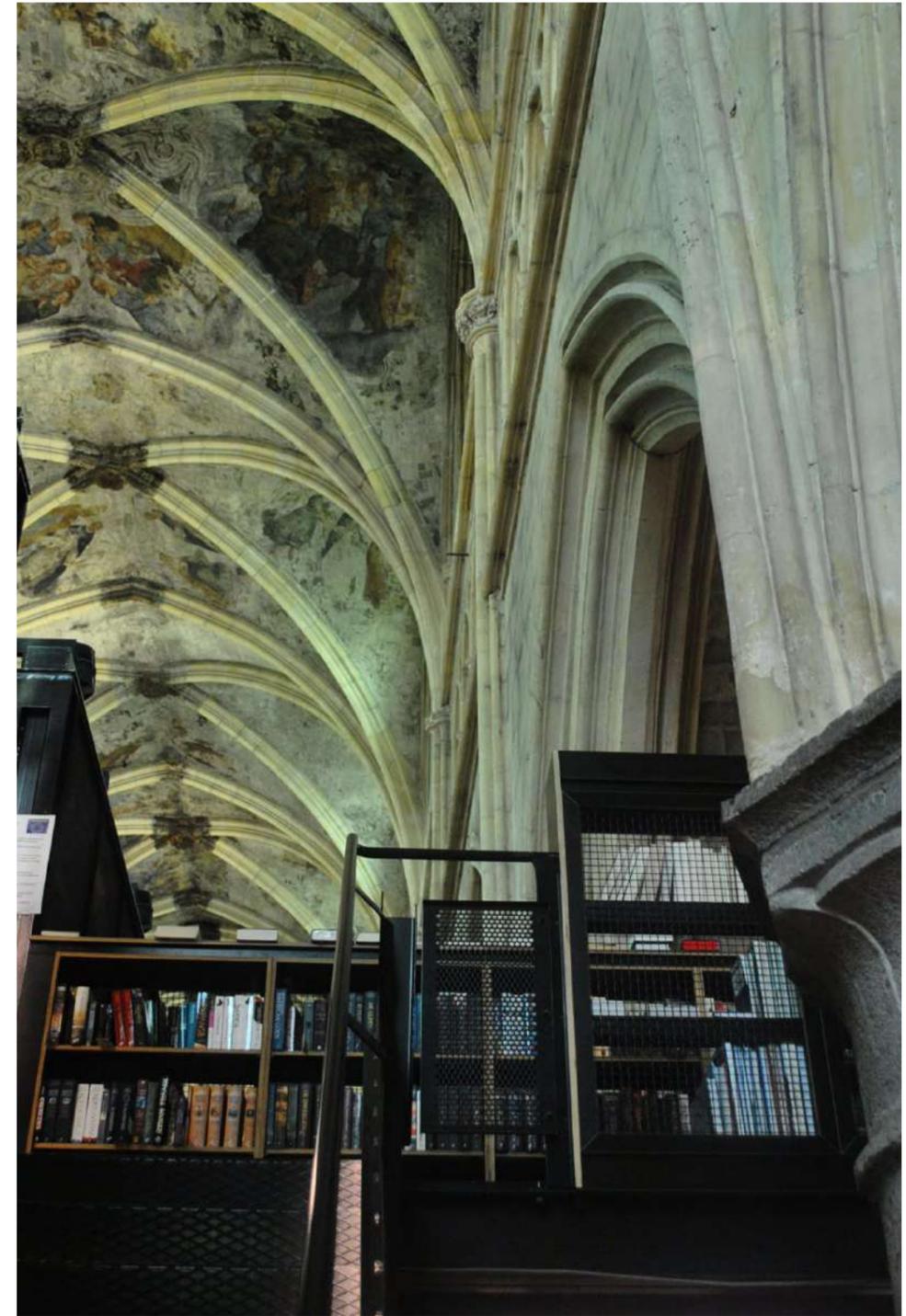
The reused windows create a compelling patchwork effect.

BOEKHANDEL DOMINICANEN

[Maastricht]



A Gothic monastery church from the 13th century turned into a book store in 2005.



The project included both a restoration architect (Satijnplus) and an interior architect (Merkx+Girod).

WIKKELHOUSE FACTORY

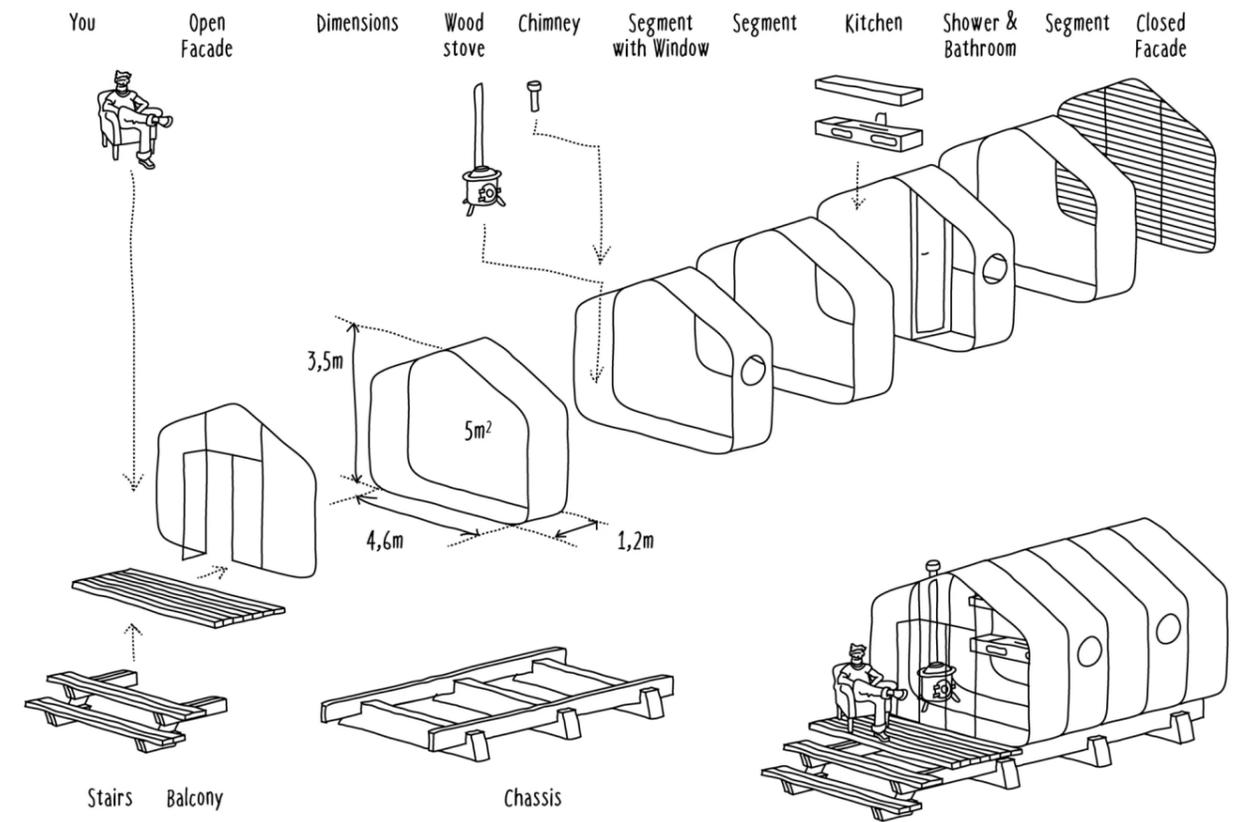
[Amsterdam]

Wikkelhuis is a company producing modular tiny house units from cardboard. In the 90's, the owner inherited a cardboard factory. He got the task to develop a very stable box and realised round corners made it a lot stronger and thus, the idea of the Wikkelhuis started. It took about 1-3 years of research to come up with the ideal construction: 2x12 layers of cardboard with wood in-between for electric wires. There are also technical segments for sewage, water and heat supply - these do not consist of cardboard but wood and normal insulation. The panels are 1200 mm and as such fit most standard measures. The foundation is either two concrete beams or plint screws if irregular ground. The shape of the house creates a continuous wind flow around the facade, including underneath.

The factory was built on a trailer to be able to drive around and construct houses. These days, most modules are built in their warehouse in Amsterdam-Noord, where they also have a showroom with two houses.



2x12 layers of cardboard form the Wikkelhuis walls.



The components that together create a Wikkelhuis (Illustration: Wikkelhuis.com).

WIKKELHOUSE FACTORY

[Amsterdam]



The production line inside a warehouse in Amsterdam-Noord.



The Wikkelhouse prototype in the industrial wasteland garden in Amsterdam-Noord.

POSTFAB ELEMENTS
[Gothenburg]

Deconstruction of a wall element at Långströmsgatan's preschool in northern Gothenburg.



POSTFAB ELEMENTS

[Gothenburg]

The original plan for the scholarship was to build a pavillion of reused materials in the Netherlands, inspired by the projects visited. Due to covid, the plan was readjusted to build a pavillion of reused materials for the 400 year anniversary of the city of Gothenburg. Due to covid, the plan was readjusted to build something out of reused materials during the MSc Thesis. Due to high ambitions on the theoretical part of the thesis and time constraints, the plan was readjusted to do it after the MSc Thesis. This finally ended up in the research project *Postfab Elements*, where me and my thesis partner Amilia Björklund was given the chance to deconstruct a 6 meter long wall element from a demolition object in northern Gothenburg. The wall was then transported to Derome's prefab wall factory in southern Gothenburg to be reconditioned and ready for yet another life cycle. The element now awaits several upcoming exhibitions, and a report is to be published on the result of the project during 2022. You can learn more about the project by following the QR code to the Youtube channel of *Postfab Elements*.



Scan it!



Reconditioning of the wall element at Derome prefab wall factory in southern Gothenburg.



BK Sterk, an espresso bar at the Architecture faculty of TU Delft, constructed of reclaimed windows. All photos and sketches are made by the author unless other stated.