aE journal

NR 13 2023/2024

Graduation **Architectural Engineering**

Framing the Freedom

Michal Kasperski nominated for Archiprix 2023

ARCHI PRIX

aE alumni working on **regenerative** design and **industrial housing** solutions (page 22-23)

Save the Date!
4 July 2023

Day of The New Architect

Mini Symposium +
Book Presentation
'the New Architect'
by **Thijs Asselbergs**
and many others

Oostserre BK City
14:00h - 17:00h

News

Framing the Freedom of The New Architect

by Thijs Asselbergs

Architectural Engineering Graduation Studio (aE Studio) started 15 years ago. It was intended as an architectural design studio for master students with a technical fascination. It started in 2008 from the department that was then still called Building Technology. Bouwkunde and bouwkunst coincide. If technology is the answer what is the design question? The basis is formed by optimal integration of climate design, structural design and building physics, including the increasingly strong developments from parametric design. Starting research from the perspective of the making or climatizing and then coming up with an assignment that anticipates current spatial issues. Lifting the world by devising innovative solutions designed across the scales and visualizing, presenting and discussing them from the perspective of an aEsthetic ingenuity.

Since the start of aE Studio, we have been accountable to the faculty community by publishing this journal every year. This is the thirteenth volume that is once again widely distributed within TU Delft and beyond. It is a platform for graduating students and an exchange tool for lecturers and researchers. Design research is presented at current locations on the basis of themes. aE always works together with external architects, engineering firms, government, builders and manufacturers of building components. We deliberately bring such parties into our faculty so that students, but also the creative industry can learn from each other. Working on integral innovative solutions that can stimulate the manufacturing industry. Addressing the complex sustainability issues at play. Anticipating the need to implement circularity in process and design product.

aE brings together many innovative aspects that a world in transition needs and which form a design challenge for new architects. We not only work with researchers and teachers from building technology, but also from management of the built environment. We look for entrepreneurial challenges and stimulate new architects to take responsibility for what they design.

And of course, we think across the scales. That is why we are proud of our collaborations with Landscape Architecture and Urbanism. We want to be able to optimally integrate nature, while harvesting water, food and energy in the built environment. We want to help thinking about how water problems can be optimally solved in the delta by making it an integral part of the task. We want to get rid of twentieth century solutions that are no longer desired due to climate change, scarcity of materials or a lack of adaptability. The 21st century calls for new ways of thinking and design that must be thought through by new architects/engineers. We would like to share such new inspiring examples. That is why this journal is full of inspiration and design ideas for a more future-proof earth!

Archiprix Selection 2023

Two aE Studio Nominees

aE Studio student Michal Kasperski has been nominated for Archiprix 2023 with his project Reviving the Rural (see page 17). The project shows an intregral approach on social, cultural and economical values brought together on an abandoned farm complex in Poland. Studying the history of wood in architecture his proposal anticipates on current needs and manufacturing techniques.

aE Studio student Yasmijn Quandt has been nominated for Archiprix 2023 with her project Back to the Roots. The design proposal introduces a nature inclusive urban development strategy for the Caribbean Island of Aruba. A passive, climate responsive housing typology has been developed with locally harvested materials and floorplans based on participatory design to easily customize, evolve and adapt to changing cycles of use and facilitate a circular way of building.

CBE Award 2022

Three aE Studio Nominees

Three aE Studio students have been nominated for the CBE Awards 2022. Ruowen Gao was nominated with her project Shared Luxury in the category Buildings and Neighbourhoods (see page 15). Man Ho Tong was nominated with his project ReCoNet: recycling community network in the category Cross-scale (see page 8). Michal Kasperski was nominated with his project Reviving the Rural in the category Cities and Regions (see page 17).

News

Open Design Workshop

Lectures, excursions and future pavilion

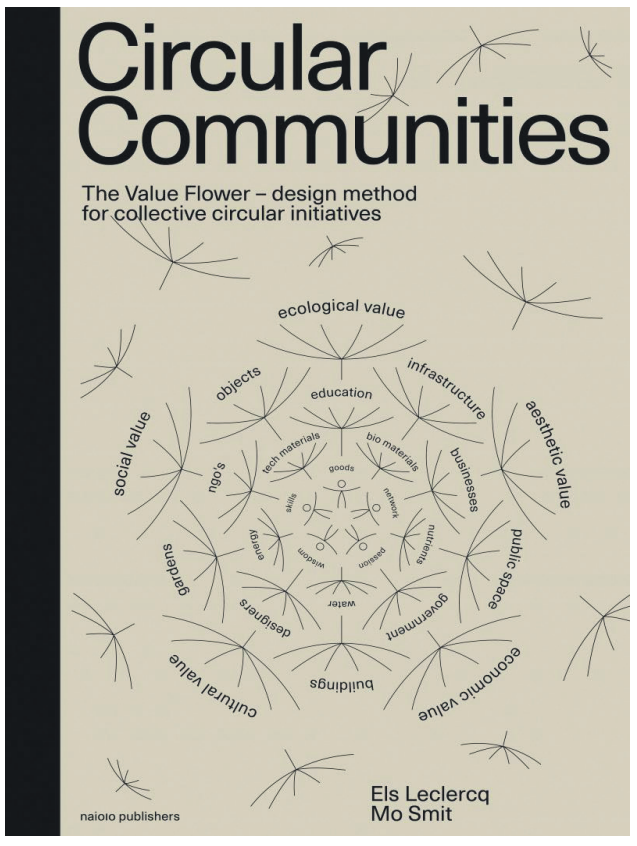
The organisation was a collaboration between TU Delft/aE Studio, Bouwlab R&Do, Circlewood/Oosterhoff group and the Openbuilding.co/academy

The ‘Open Design Workshop’ addresses the need to optimally integrate industrialisation, digitisation and the circular use of materials in open building processes. Implementing these aspects in the design means a great innovation for our design and construction industry and promotes circular design and proper reuse. In addition, customisation can be made possible for users of all ages. Thus, it contributes to solving societal challenges. Now and in the future.
This spring master students from TU Delft’s aE studio spend three weeks working on innovative solutions for creative, flexible, scalable and reusable solutions based on design research. MSc4 students worked within the context of their already chosen locations. MSc3 students took the wood core system developed by Circlewood as a basis for realising a ‘future’ pavilion. Several key note speakers presented inspirational lectures. Excursions were made to several industrial builders in the Netherlands. The results were presented at a public meeting, where teachers and various referees were invited to reflect on the students’ proposals.

Publication

Circular Communities

Circular Communities has been published by nai010 Publishers. The book is the result of case-study research by Els Leclerq and Mo Smit into collective circular initiatives at the scale of the neighbourhood. Central to the book is the Value Flower design method which enables citizens to play an active and effective role in the transition to a circular and sustainable society.



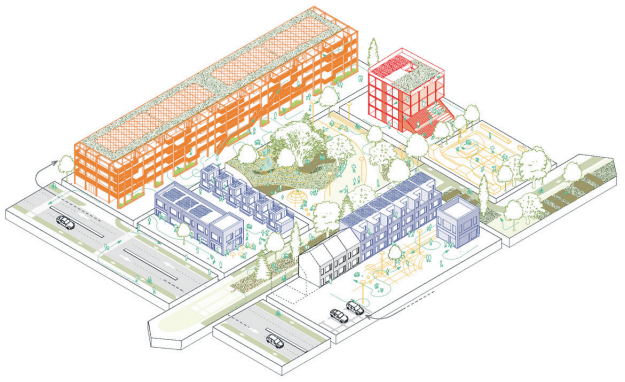
What Open Design Can Do

Excursions Delft Campus & Boerhaavewijk, Haarlem

Last autumn students went on excursion to Haarlem and close by to Campus. Those two contexts were chosen as testing ground for experiments on aE topics.

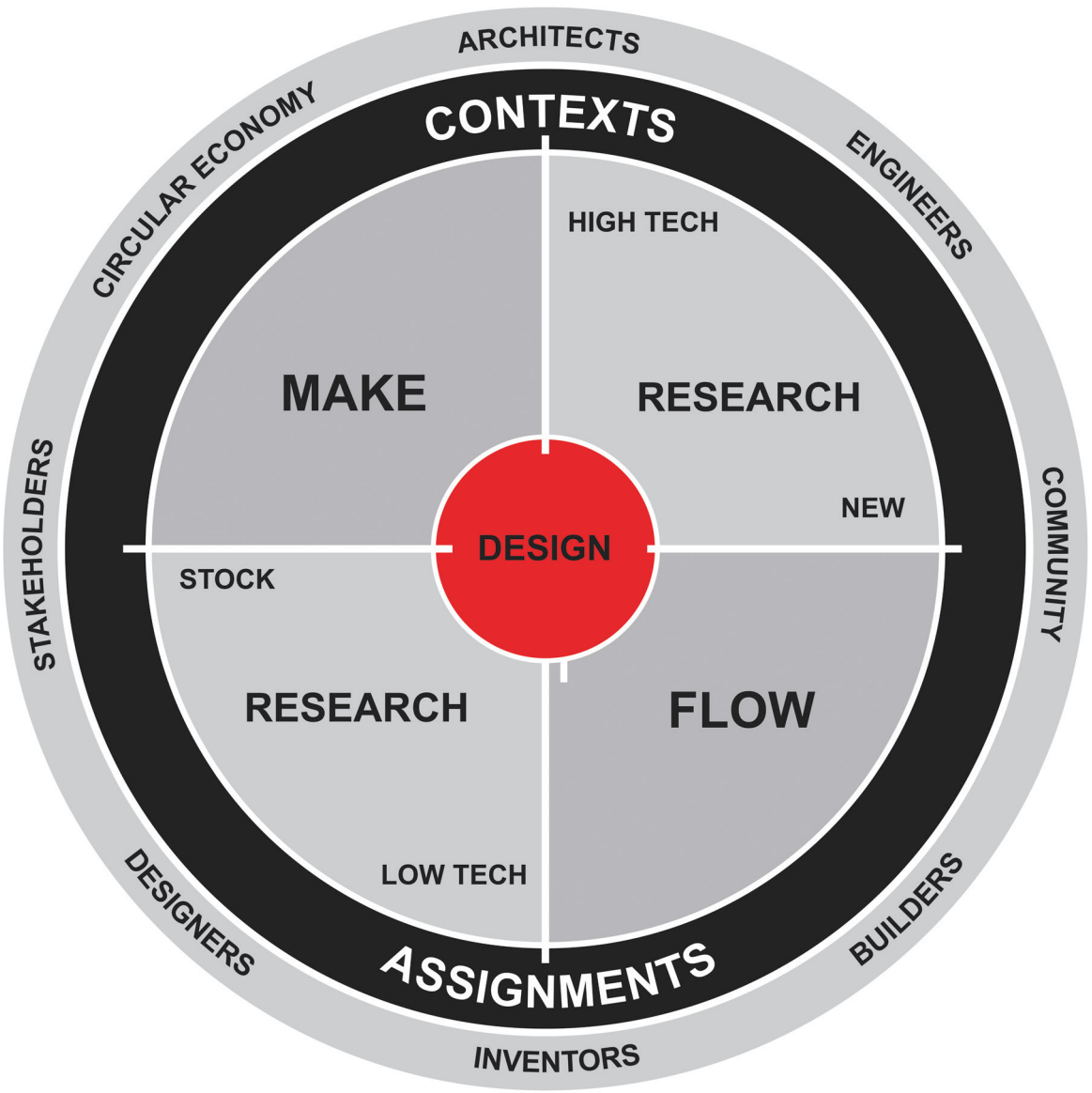
Boerhaavewijk is a to-be-transformed post-war residential area with amenities in Haarlem East. In collaboration with Studio dmau architect Jeffrey Bolhuis and the City Architect of Haarlem Willem Hein Schenk aE studio students are developing a Living Lab within the Boerhaavewijk of Schalkwijk Haarlem. Other Living Lab Partners are Municipality of Haarlem, Housing Corporations Elan/Pre Wonen/ Ymere, Van Hier, Community Council Boerhaavewijk, Metropool Development, Sint Jacob Foundation, ABC Architecture Centre, Board of Government Advisors Bouwlab R&Do, TU Eindhoven, TU Delft, Waag

Campus is TU Delft’s University Campus that requires flexible solutions and aims to be CO2 neutral by 2030. Working on a Living Lab in EWI architect Anne Snijders did start a discussion with a group of aE students what would be necessary



on campus to be an inspirational place for others, for businesses, researchers and students; how free the freezones are; what to do with (partly) vacant buildings, and how to design those plans working on the societal challenges of today and tomorrow. aIn collaboration with Open Design partners, Campus Real Estate, sustainability Coördinator and Landscape Architecture aE students work on their experiments and visions for Campus 2030.

Introduction



Approach

In the Architectural Engineering Graduation Studio we are looking for innovative solutions in engineered architectural design, while encouraging students to explore their role as architects in facing today's challenges. Understanding existing potentials, knowing the possibilities of renewal and discovering how to design, innovate and initiate change are central themes in the aE Graduation Studio. Under the guidance of a team of enthusiastic (guest) lecturers and tutors, students search for innovative technical solutions for diverse problems in various contexts. The three main research by design domains promoted in the aE studio are 'Make' , 'Flow' and 'Stock', as described below on this page. Each domain requires a different approach and offers unique design solutions, while creating multiple value for the built environment together.

FLOW

In Flow we see buildings as structures interwoven with their wider system. The sustainable performance of buildings has everything to do with flows. Well managed flows of people and resources contribute to valuable, comfortable and healthy spaces and cities.

STOCK

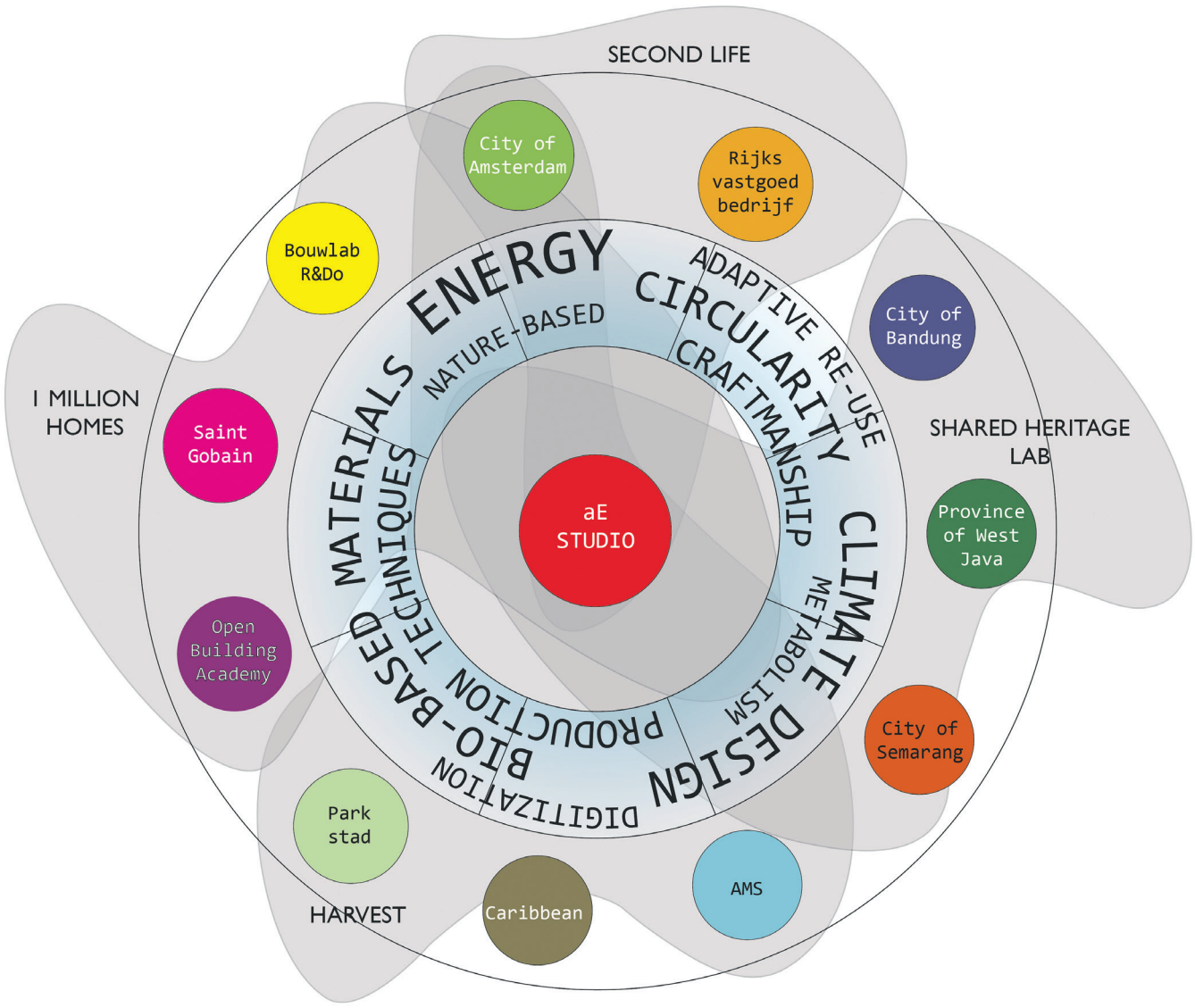
Stock is about the potential of the existing by looking differently to what is already there, by making use of a technical fascination, in relation to current or future needs. Ideas for intervention can vary: the upgrade of existing housing stock, office buildings or product development of interiors.

MAKE

Make is about new (digital) production methods, the (re)-use and development of materials and systems for existing and new applications. How do we change the future of our environment, our homes and our cities, using a bottom up approach towards a better and more sustainable future?

Introduction

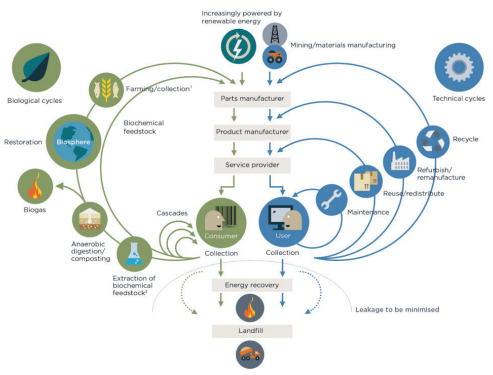
Collaboration & Knowledge Exchange



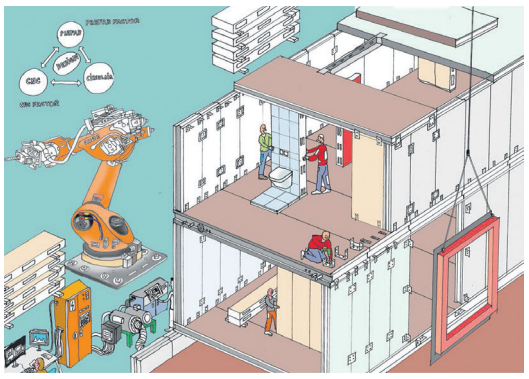
aE Graduation Studio combines design and technical innovation throughout all scales in architecture. In our Architectural Engineering program we seek innovative and inspiring architectural solutions for environmental and societal issues together with various stakeholders. With today's local and global challenges we are driven by the need to think differently about materials, craftsmanship, energy generation and efficiency, user participation and bottom-up or top-down approaches. In view of the current and constant changes of society, we need to see the built environment and the role of the architect in a new perspective. A vast amount of buildings are vacant and unused while a large percentage of the existing housing stock does not meet today's requirements. But also new buildings have to deal with changing circumstances. Smart and responsible solutions are therefore vital in refurbishing and designing new future-proof buildings.

Agenda

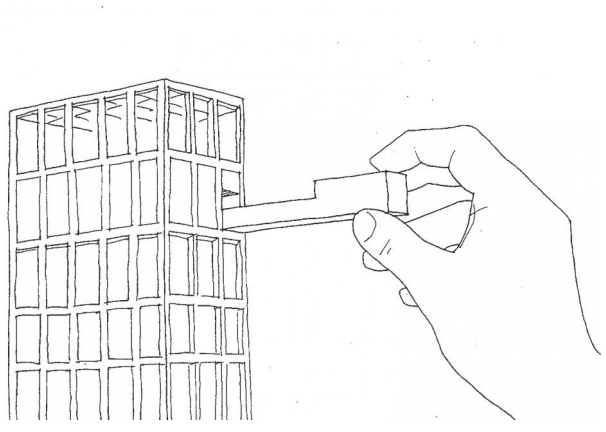
UN SUSTAINABLE DEVELOPMENT GOALS



CIRCULARITY



DIGITALISATION



OPEN BUILDING

SECOND LIFE

HARVEST

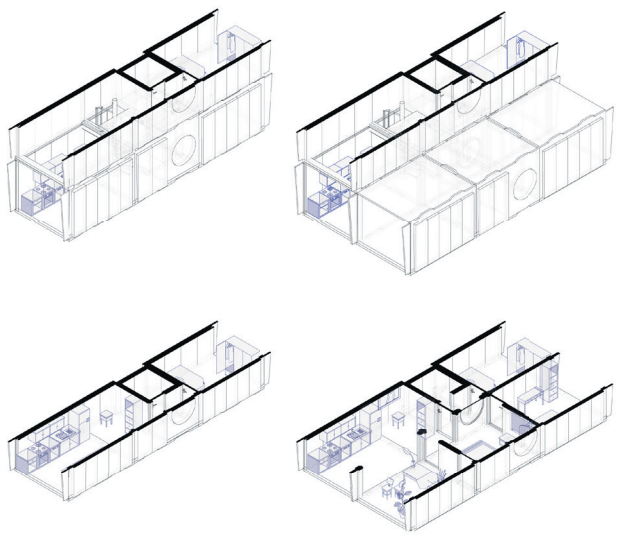
Program Open Building

Exploring its parts & the whole

text Thijs Asselbergs

Large-scale industrial housing can contribute to reducing the housing shortage. In the past, however, this has strengthened the position of builders, and thereby limited the influence of residents and the adaptability of the housing stock. How can Open Building, in combination with digitization and automation, contribute to a sustainable solution for the housing shortage and at the same time give residents more influence?

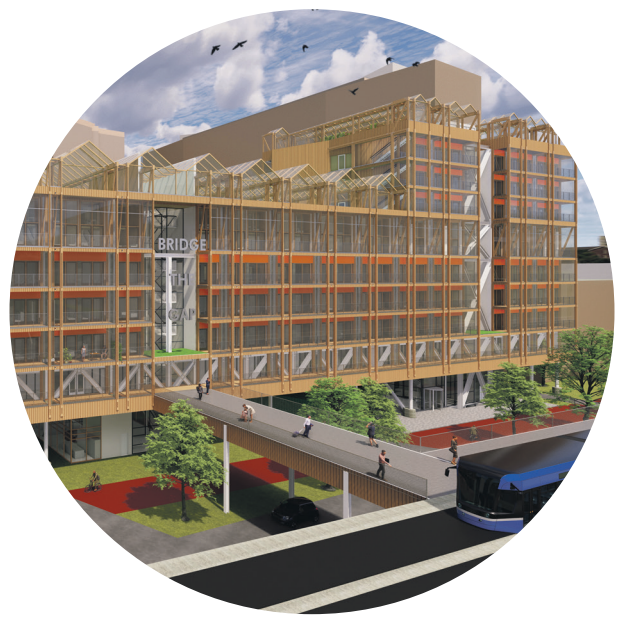
Open Building is an architectural and urban development approach, in which renewability and adaptability are central. About dimensioned building in the basic construction (the support) is combined with light construction of the built-in (the infill). Open Building was developed since the 1960s by John Habraken and various colleagues. Now it inspires a group of architects who connect through the Open Building platform. In Open Building, the built environment changes part by part in a continuous and dynamic process of design and construction. A distinction is made between different layers, which change at different speeds and to which design and decision-making are geared to. The layers are also reflected in the technical systems in construction, which are linked together in such a way that one system can be replaced or adapted independently of the other.
Open Building offers a structure to achieve the necessary renewability and adaptability. Digitization and automation in design, production and logistics are in full development. Mass customization reduces additional costs for non-standard designs, and large-scale industrial construction and residents' influence can go hand in hand. Open Building in combination with support and installation can contribute to a sustainable answer to the unpredictable housing demand.
In addition, the high demand for homes can also be achieved by using existing homes more efficiently and by transforming non-homes. Many existing buildings have carrier qualities, even if they have not been developed according to Open Building. To take advantage of the opportunities, existing carriers must be identified, new financing constructions explored and possibilities for scaling up mass customization must be further explored. In order to achieve the CO2 targets, preservation of valuable buildings and limit housing costs, it is also better to renew existing buildings. Within the domain of Open Building, graduates from aE studio conduct design research and show their results that can contribute to adaptable and valuable environments. See also www.openbuilding.co/academy

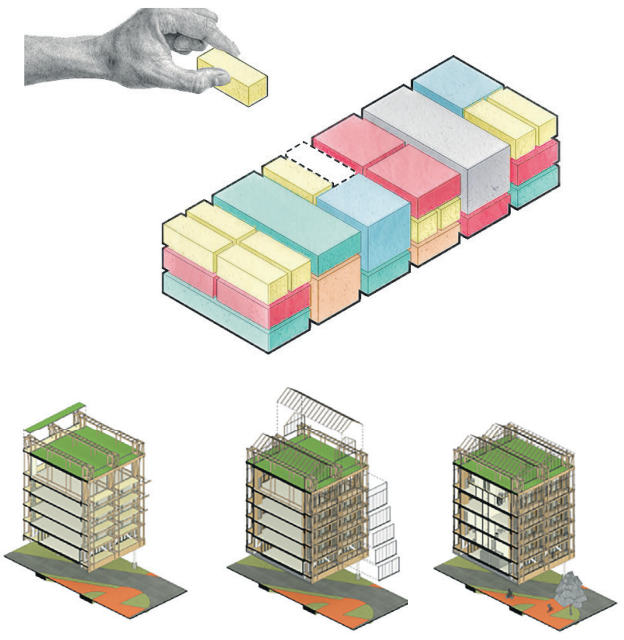


TRANSIT VILLAGE

David Grünewald

Transit Village is a planned new neighborhood located in Arnhem. Its buildings are constructed with a demountable modular building system, crafted from circular materials. User customization is maximized on layout and façade levels, thereby making apartments adaptable to changing needs. The individualizable approach eventually forms an answer in tackling the housing shortage.

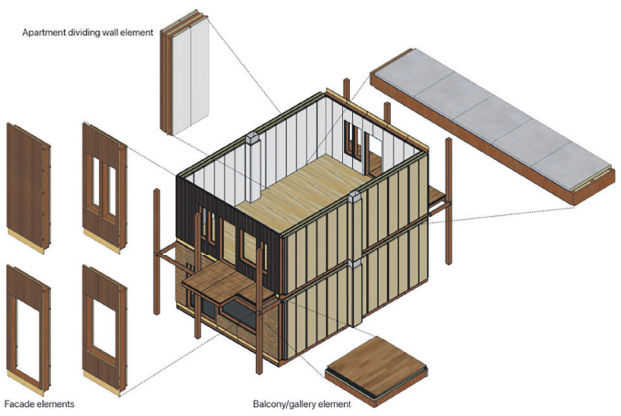




BRIDGE THE GAP

Jordy Wagemaker

How can we as architects give every tenant the freedom to design their own home without excluding people with different social backgrounds? How can this result in a positive outcome for the climate and housing crisis? Bridge the Gap gives the answer by using a technical second skin facade for existing vacant buildings, resulting in an empty space where tenants can design their own desired floorplans now and in the future.



BUILDING SIMPLICITY

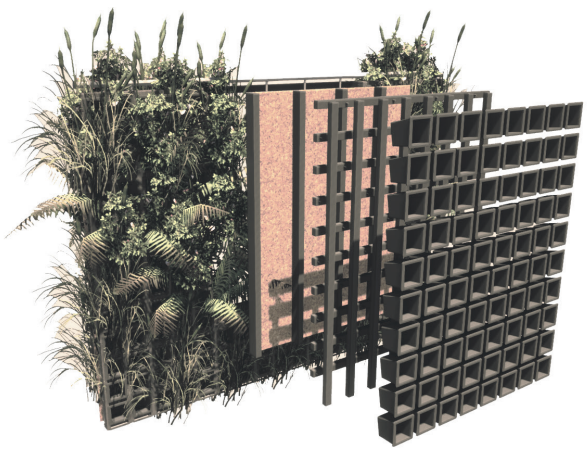
Rubin Agerbeek

A combination of a ‘housing cooperative’ and ‘low-tech principles’ tries to bring back affordable housing back to the people in a sustainable way. A pure light timber frame system with universal, interchangeable elements forms the basis for standardised housing units. The housing cooperative has a lot of freedom to choose how they want to shape their living environment.

A FRAMEWORK FOR GROWTH

Anna Stelzner

Nature is used in varying scales to increase biodiversity, improve well-being and reduce waste through biobased materials. My research focused on an adaptable, circular, functional and biodiverse vegetative skin. The architecture is adaptable and the neighbourhood is circular. Nature and architecture come together to create a better living environment.



Program Open Building

Structures & Systems

UNDER THE COMMON ROOF

Xinrui Li

My graduation project seeks to create a community marketplace and elderly co-housing complex for Houthaven and Spaarndammer neighbourhood in Amsterdam with a strong connection to urban greenery and the local hinterland. The design focusses on implementing local biodegradable building materials and resources within the programme and its architecture.

FUTURE BUILDING SYSTEM

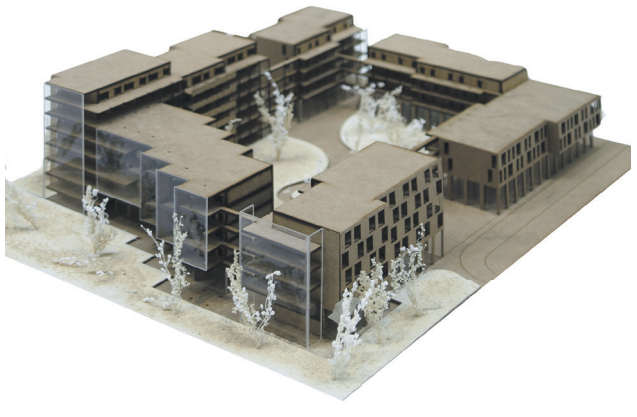
Adrian Beijaard

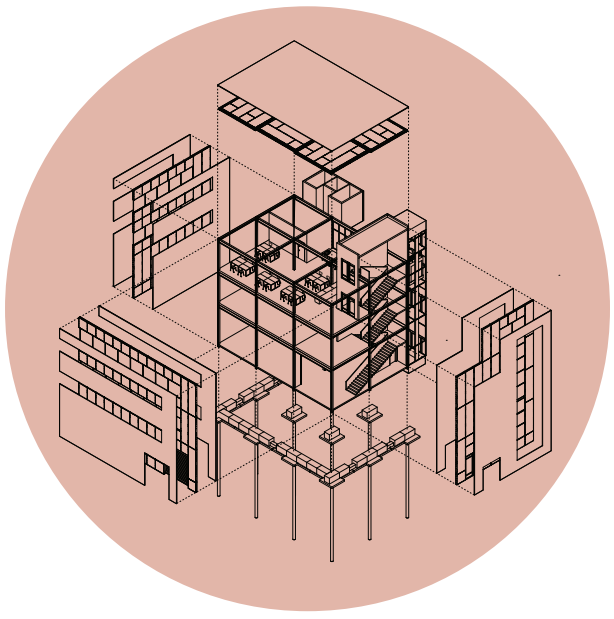
The Dutch construction industry is facing a challenge to reduce CO2 emissions with 40% by 2030. There also is a major housing shortage, requiring the construction of one million homes by 2030. To meet these goals an innovative building system has been developed to contribute to the sustainability of the sector consisting of generic and applied phases which are continuously exchanged.

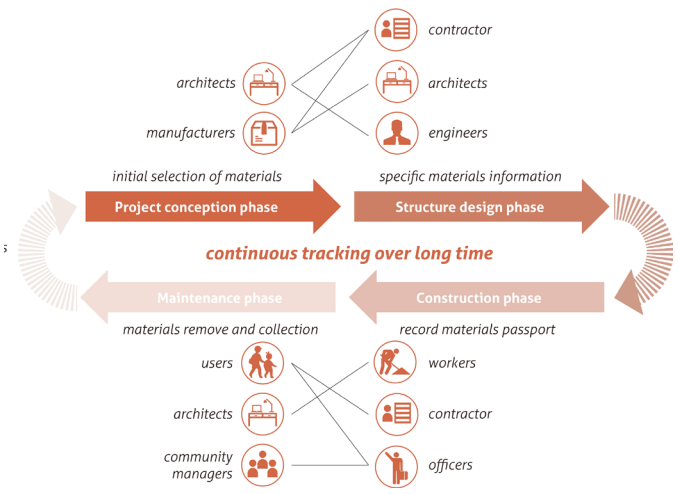
RE-CO-NET

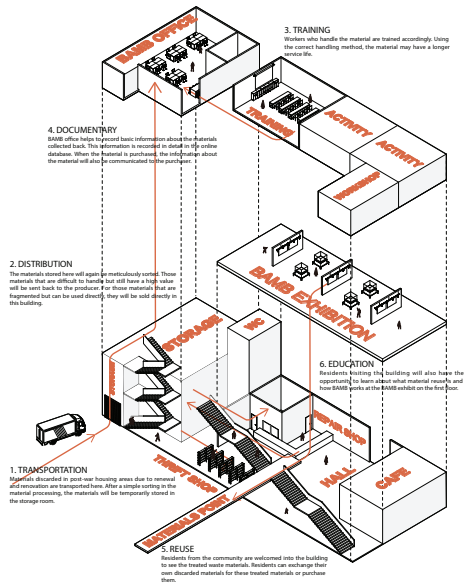
Man Ho Tong

ReCoNet is a housing complex which is designed to reconnect in three scales: Macro, Meso and Micro. The composition of ReCoNet is designed around the concept of a recycling community. Taking social, ecological and economical sustainability as its key points, ReCoNet aims to create a well-balanced and versatile contemporary solution that maximizes the potential of the use of recycled plastics in the built environment.





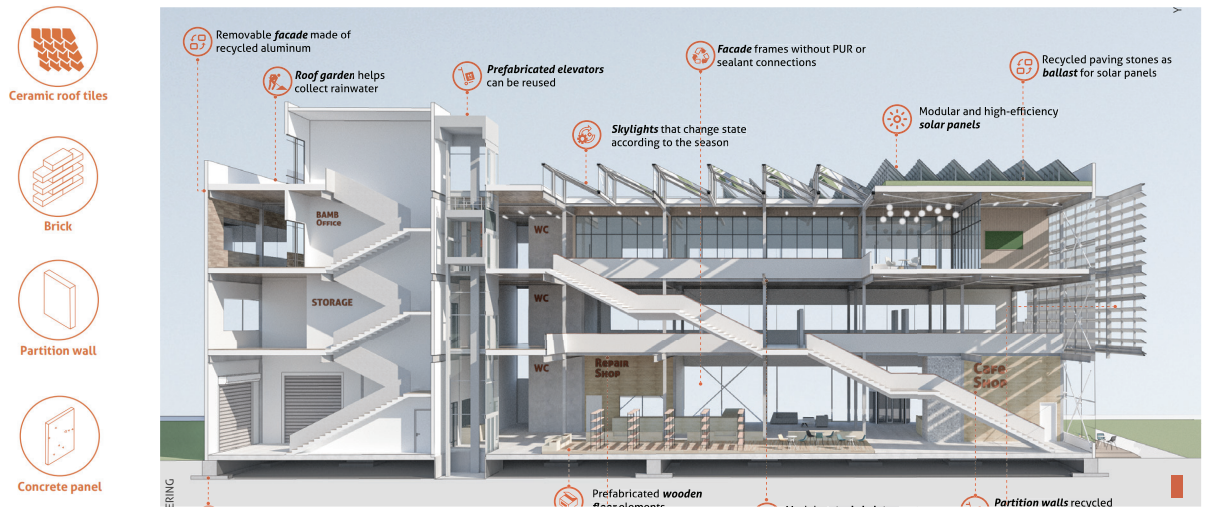


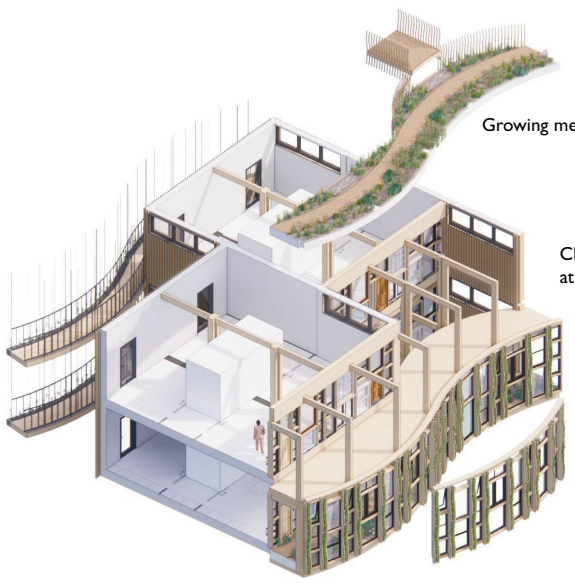


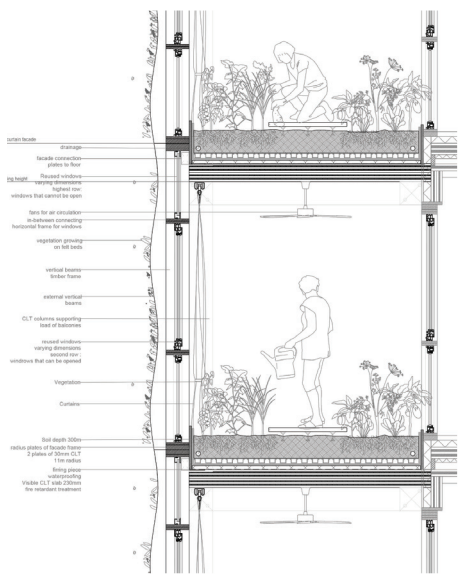
COMMUNITY MATERIAL BANK

Yujia Ren

This project explores the potential of the circular economy concept Buildings as Material Banks (BAMB) to reduce material waste from the renovation of post-war housing. It examines the feasibility of reusing materials from these buildings via a community-based approach at the neighbourhood scale, creating meaningful jobs and socio-economical value at large.



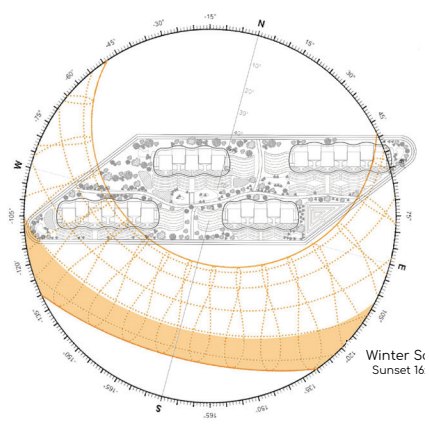




THE NUTRIENT BLOCK

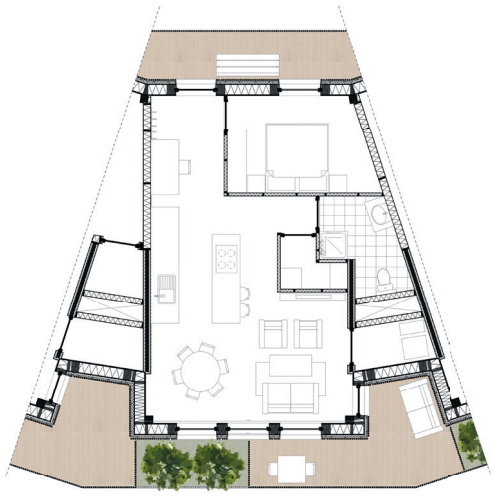
Elya Ouroumova

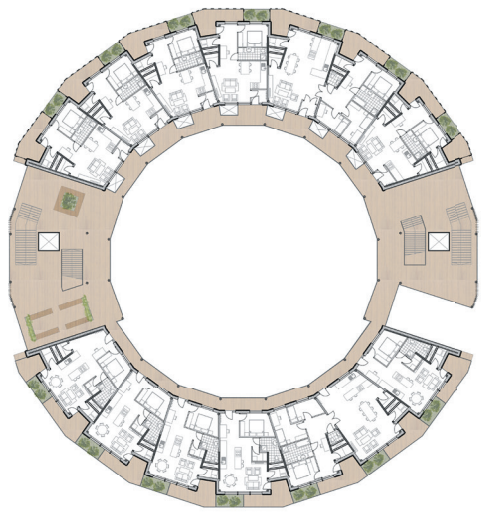
The Nutrient Block is a regenerative neighborhood development in Amsterdam, which harvests biological and technical ‘nutrients’ on-site. The building’s double skin expands to a unique community space for local food production. The double skin is seasonally adaptive through a low-tech climate system and assembled of re-used window components harvested from derelict buildings.



Program Open Building

Ecology, Energy & Biodiversity

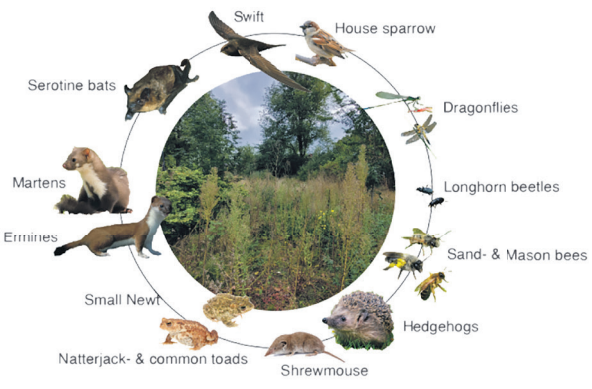




SOLARPOLIS

Vittoria Mirra

Solarpolis is a proposed neighbourhood at the Merwedeterrein in Utrecht, which uses a passive climate design approach. The proposed modular strategy has the advantage of being resilient enough to cope with future climate changes or changes of layout of the living environments; it employs state of the art sustainable technologies to ensure maximum circular energy sufficiency.



HUMBOLDT

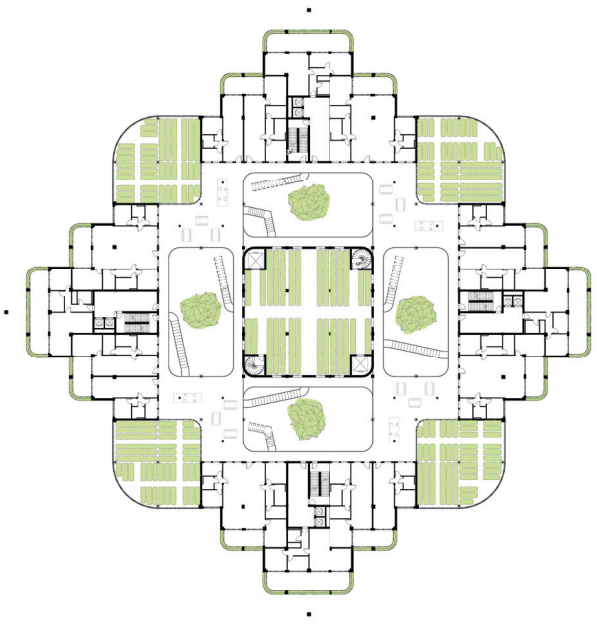
Ella Wildenberg

What if a building were designed to resemble a complete mountain landscape? Humboldt is an example of how nature inclusive design can provide a diversity of food and shelters for both animals as well as humans in many ways. With a flexible timber construction and nature inclusive architectural elements, the project forms a sustainable and natural hotspot in Amsterdam.

THE SYMBIOTIC HEART

Ciske Buiter

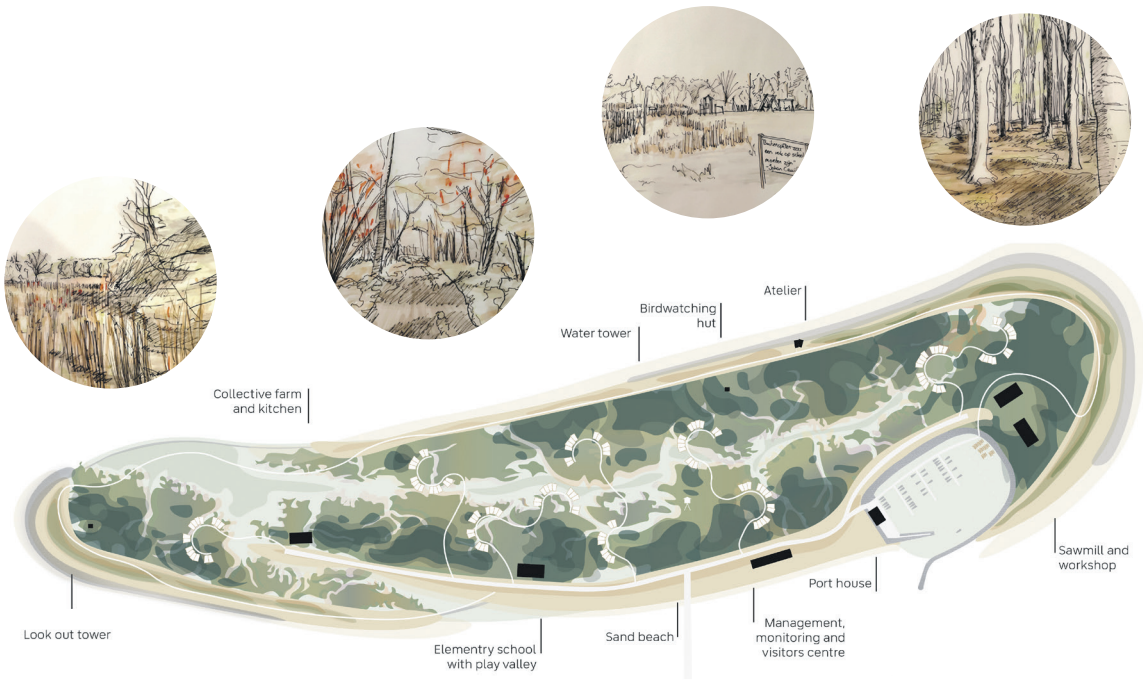
The built environment is one of the greatest contributors to the decline in worldwide biodiversity. Making a true nature inclusive design that increases the foothold for biodiversity, is the main topic of this graduation project which focuses on the renovation of a monolithic 70'ies office building in Haarlem.



GROW/HOUSE

Floor Eerden

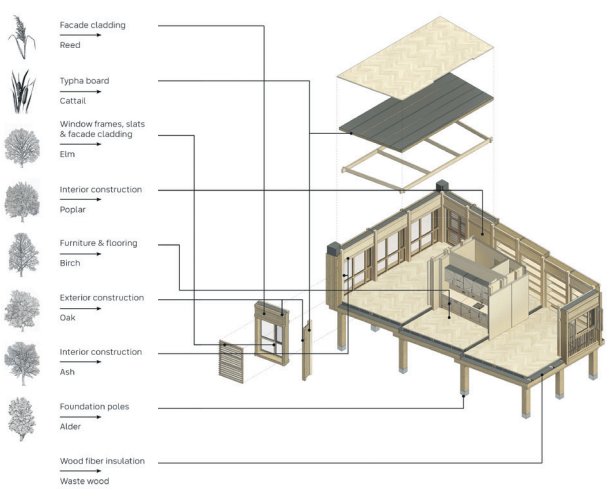
This housing project radically eliminates food supply chain emissions by proposing a building which produces food by and for its inhabitants. The design consists of 100 housing units, a plant factory and 4 glasshouses. The building is self-sufficient in water, food and energy consumption. An educational center is added to learn about sustainable food production.



URBAN FOREST ECOLOGIES

Ruben Koppes

As space in urban environments becomes more precious, planning for a nature inclusive infrastructure needs to be considered using a multi-layered approach to ensure effective urban foresting. Therefore, this research focusses on the integration of urban ecologies, forest ecologies and the ecological relationship with the individual, to create circularities on a neighbourhood scale.



Program Second Life

For Post 65 Buildings @ Campus Utrecht a.o.

text Anne Snijders

Second Life puts a second life on the agenda for Post 65 buildings and in particular from the period 1965-1995. Many of these buildings are in the spotlight locally and will be given a different function or renovation in the near future. When demolition is no longer an option.

Regarding climate change, innovation in construction is of public interest. Use of existing structures will diminish CO2 and NOX emissions. It will diminish the question for more infrastructure and built environment, but asks for better and carefull design related to sustainability goals and a healthy environment.

Next to Post 65 residential areas – the office areas are often monotonous clusters, with a concrete support structure. Students of the aE graduation studio worked a.o. on the brutalist Kruyt building on Campus Utrecht and the office ensemble on Campus Leeuwarden. With the aim of investigating their potential and discovering the function which the buildings can fullfill in the contemporary urban fabric. Material circularity, energy management and flexible work-living environments were used as a starting point for design.

HEALING BY TRANSFORMING

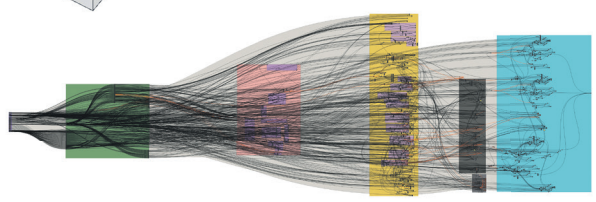
Jaap Koopmans

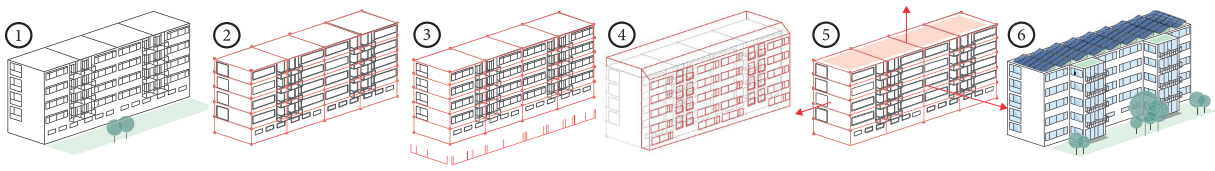
RIVM has suggested that more attention should be paid to the negative consequences of urbanisation. This has opened up a chance to create ‘healing environments’ which are often in natural settings. This project aims to discover how a user-centred, holistic design approach can be applied to an existing building in the Leiden railway station area and which benefits this could bring to the local area.

COMPUTATIONAL DESIGN

Pim Brueren

This project seeks to improve the renovation process of walk-up apartment buildings by using a modular facade system created using computational design. It will maintain the existing typology of the building, while also providing more variation in the facades and reducing renovation time and costs. The script will show the amount and size of the panels and materials, which will speed up fabrication and assembly.

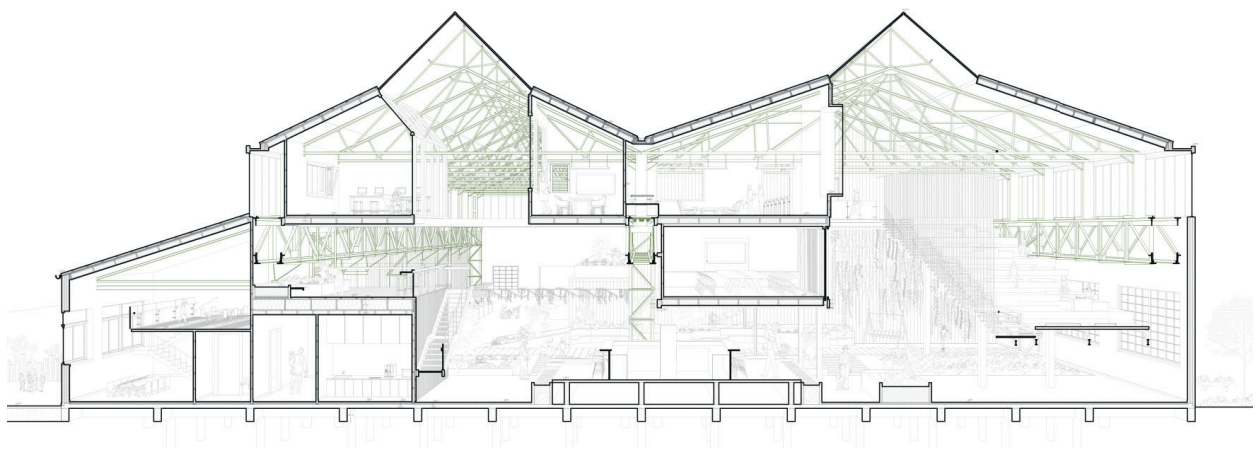


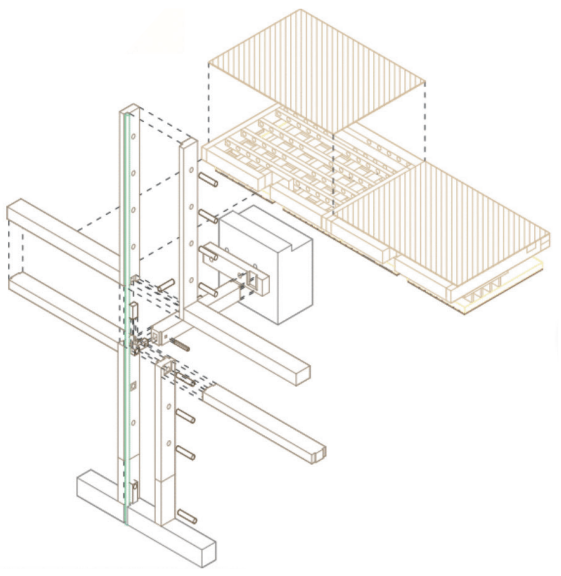


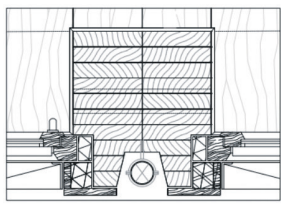
INBETWEEN CONTEXT

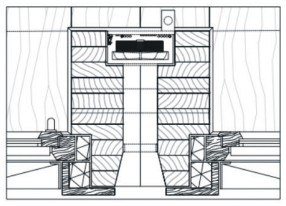
Jiahui Yan

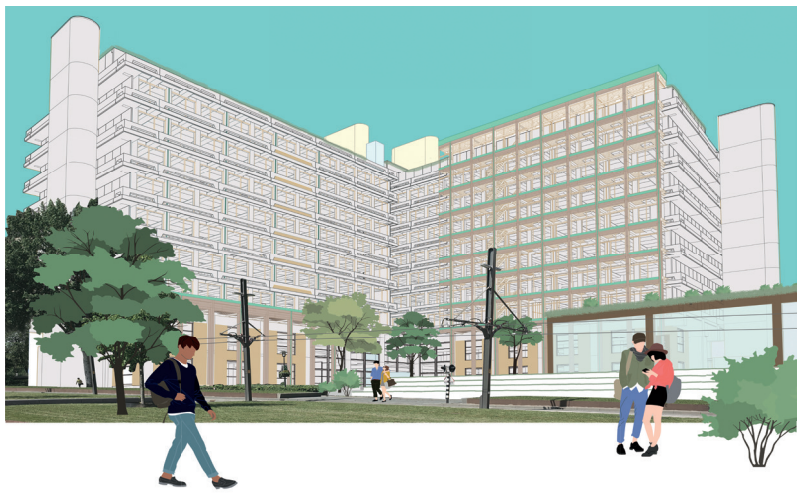
Since the late 1970s, reusing industrial buildings has been seen as a sustainable way to maintain their cultural identity and prolong their life span. The Hembrug site is a 19th century weapon production base which closed in 2003. To meet modern needs, renovation is preferred to demolition as it preserves the past, creates more space and reduces energy consumption. This research looks at suitable renovation strategies for the industrial buildings, with a design process based on the findings.







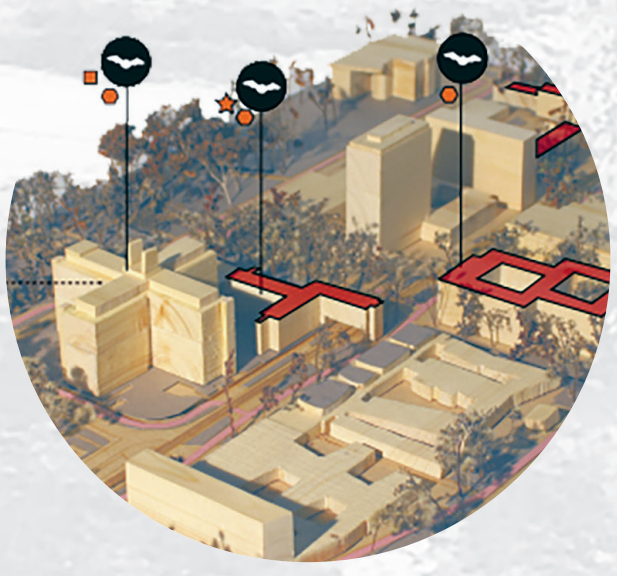


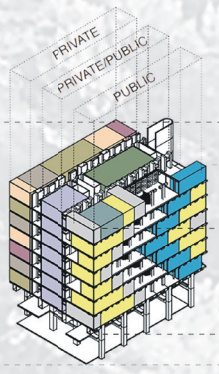


THE BRICOLEUR - ARCHITECT

Laura Wiedenhöver

This project argues for an alternative circular and healthy construction approach that can be applied to renovate other existing 1960s and 70s concrete buildings in the Netherlands. It integrates historic techniques such as press-fit timber connections, and uses natural and local harvested materials to provide the Hugo R. Kruyt building a material conscious and environmentally friendly second-life.



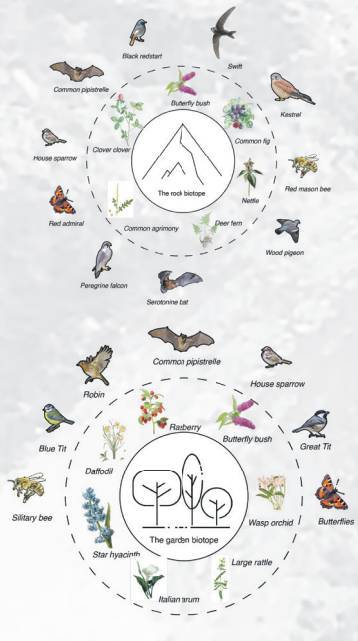


H(u)bitat
experimental wall
public engangment
fixed

fluid plan
labs - farms - co-working
- startups
flexible

modular facade
flexible

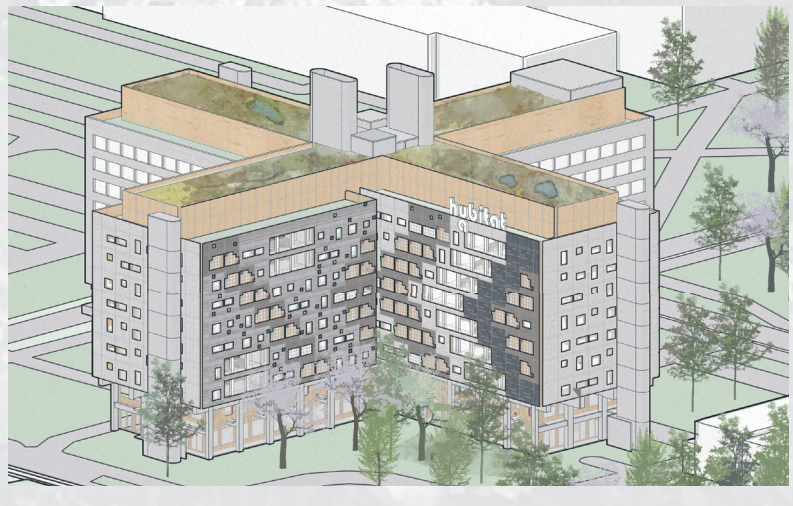
nature design
animal toolbox
ethical farms - habitat



NURTURE. RESEARCH. HARVEST.

Eleni Papaevangelou

The Hugo R. Kruyt building is turned into a pioneering nature inclusive living lab that combines people and animals living together in harmony. It has a modular cliff biotope for fauna and an ever-changing layout for nesting and foraging. Ethical farms include guano, feathers, worms and insects to encourage public engagement and biodiversity conservation. The façade is a place for discussion, interaction and testing new materials and processes.



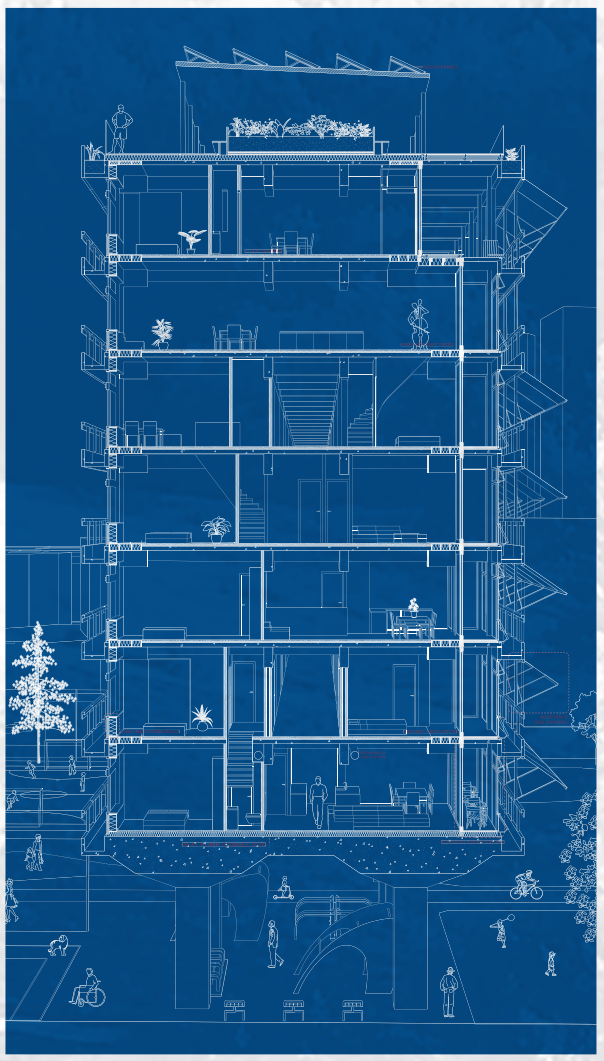
Program Second Life

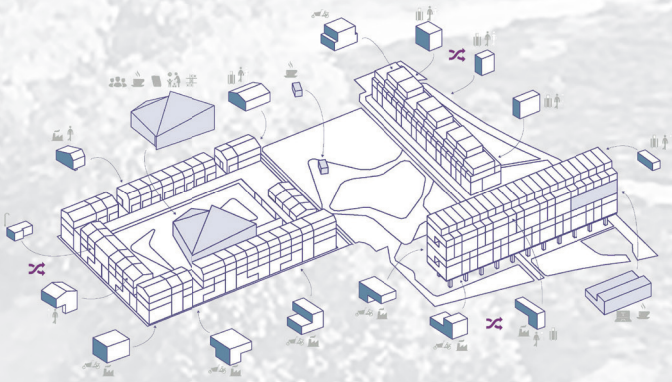
For Post 65 buildings @ Campus Leeuwarden

BIOBASED EXTERNAL WALLS

Balthazar Kiewiet de Jonge

Add-in, wrap-it and add-on are three strategies for retrofitting external walls. The material used for the add-in strategy needs to be resistant to moisture and examples of biobased materials for each strategy are being developed. The research looked at CO2 sequestration, CO2 footprint, cost, thickness, weight, lifespan and source location. Fast growing materials are found to have high potential for CO2 sequestration, whereby straw has the lowest CO2 emissions, longest lifespan and is most affordable.

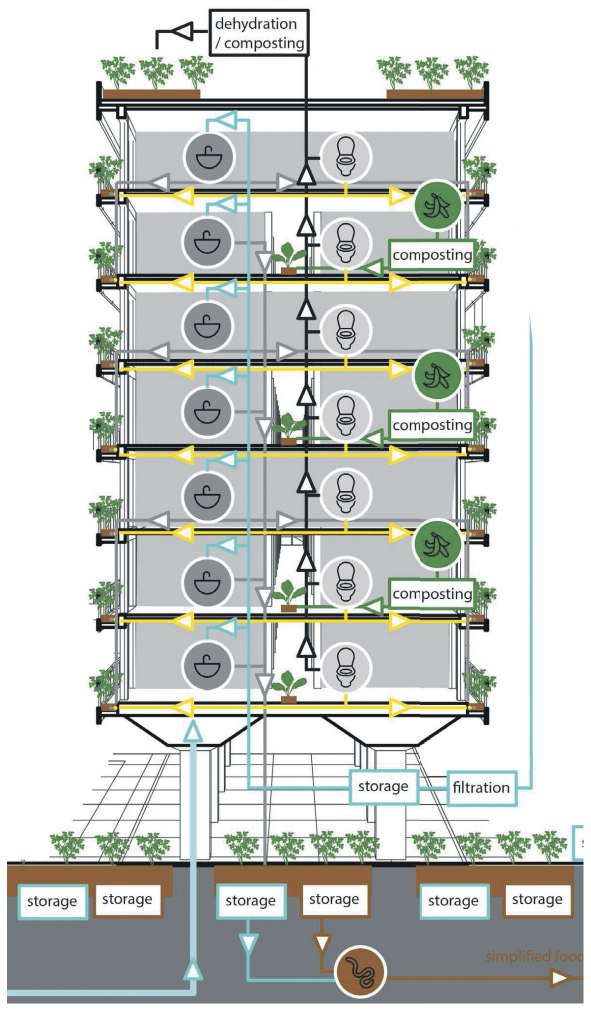




BUILDING AS A LANDSCAPE

Adrianna Waleszczak

How to enhance biodiversity in cities? This project investigates if it can be done by the connection of the water-nutrient flows with the naturally occurring cycles. The project showcases a permacultural approach and the application of a low-tech sanitation system. The added façade layer to the T4 building in Leeuwarden connects people with nature through architecture, allowing biota to be on the ground, façade and roof, a sustainable way to (re)connect people with nature.



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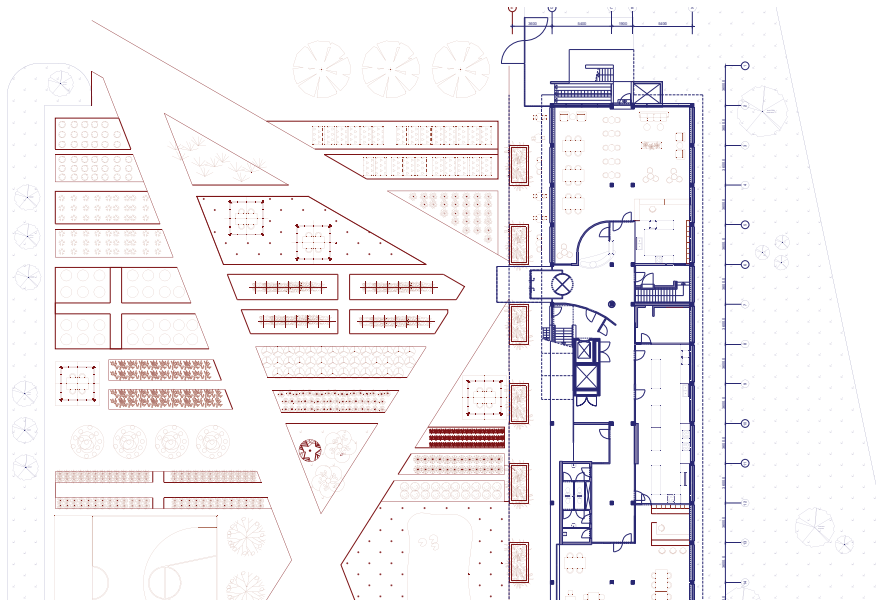
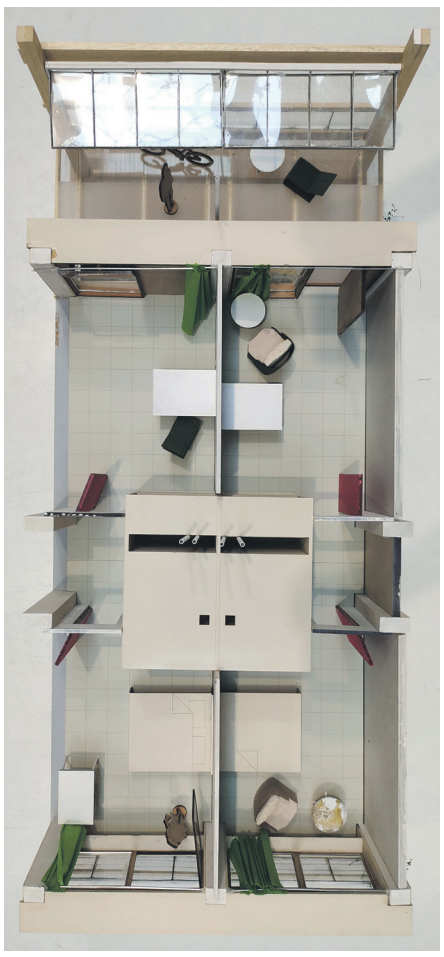
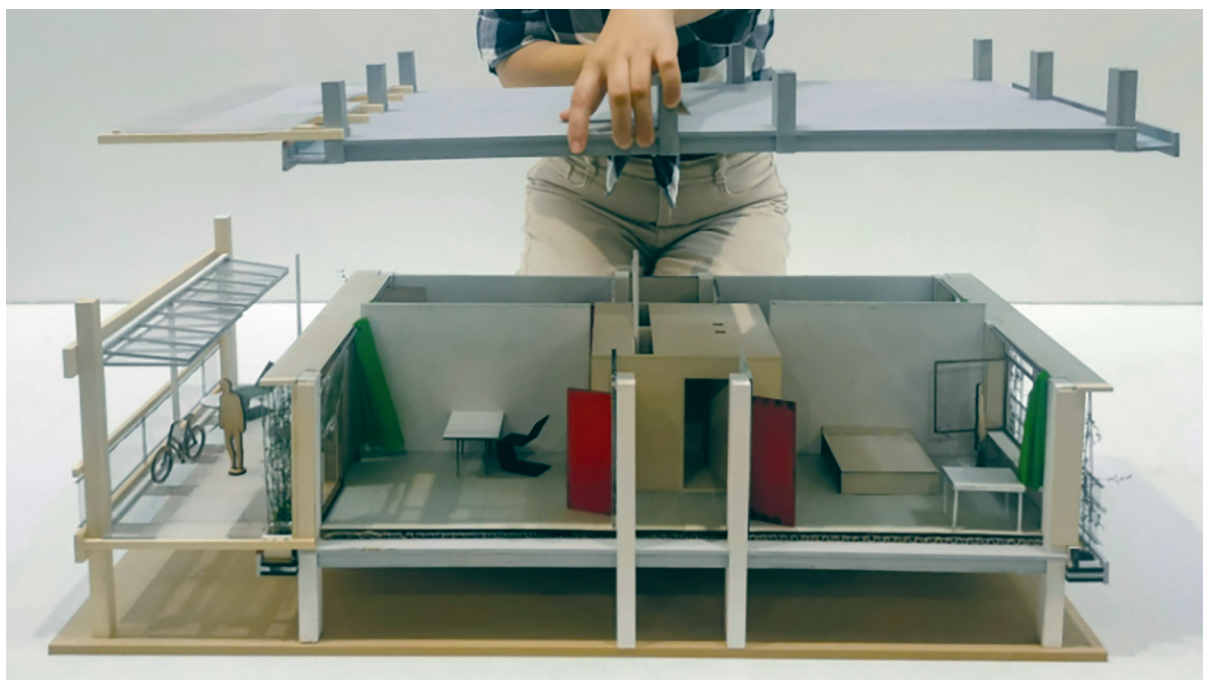


SHARED LUXURY

Ruowen Gao

Two monumental buildings were adaptively reused as social housing, with minimal interventions under circular design principles. Self-organized, independent programmes intend to help socially marginalized tenants to re-join the civil society. The idea of sharing enabled social contact and provides a place to learn and work, meanwhile leading to a low-impact, high-quality community life. Prefabricated, modularized and flexible components were largely used in the new construction, allowing more spatial possibilities.





Program Harvest

Material & the Rural

text Anne Snijders & Mo Smit

Working on healthy cities, villages and landscapes asks for multi-scalar design strategies and decision making with regard to the integration of urban resource flows within the built environment. Circular value chain thinking is needed to find regenerative and inclusive solutions for the future.

Students from Architectural Engineering experiment with regenerative strategies leading to strong designs for productive and recreational landscapes, valuable neighborhoods, buildings and (infrastructural) objects. Sustainable solutions for urban resource management are increasingly organised in a decentral way and need to be spatially embedded and supported by local communities. This transition therefore requires new forms of design processes for the (re)development of urban areas.

As part of the cross-domain Harvest program, research is being done in the working fields of urban metabolism and urban ecology. Closing the loops of urban resources, such as water, materials, energy and food, forms the starting point for interventions leading to interesting new programs, biodiversity, joy and quality of life.

NIEUWE HOF

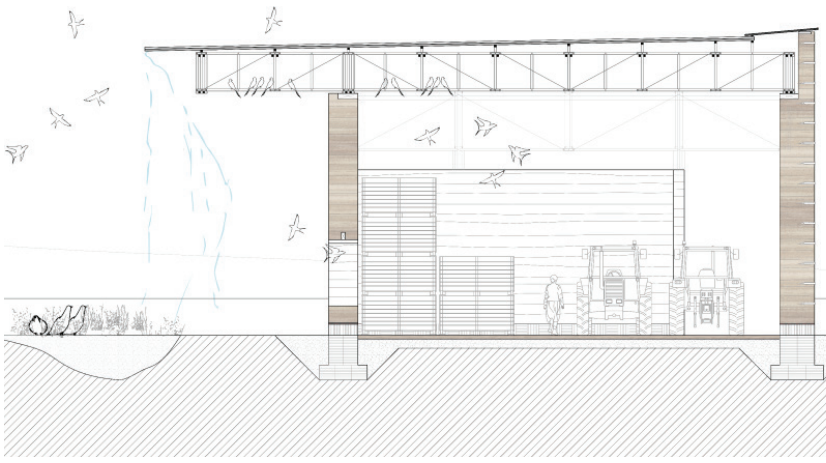
Pieter Oosterheert

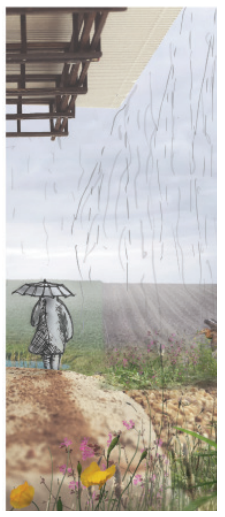
Relationships between food and space are explored in a peri-urban setting in Zuid-Limburg. Spatial tensions between urban, rural and ecological landscapes are also investigated through an estate design on an agricultural plot.

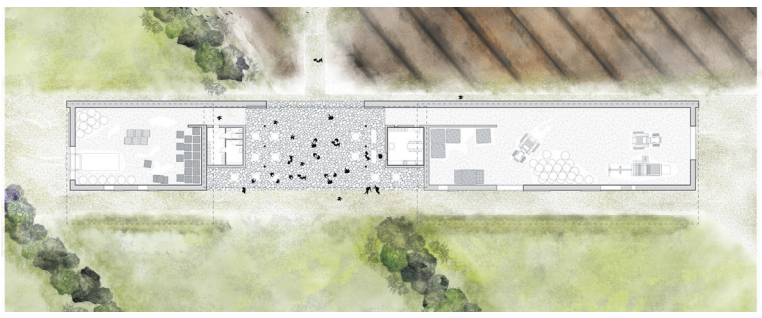
I AIN'T GONNA WORK ON MAGGIE'S FARM NO MORE

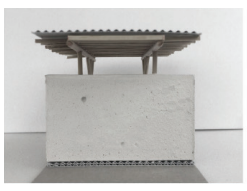
Aron Jansen

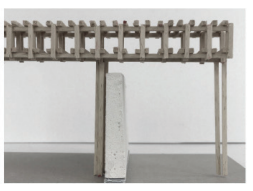
This project reinterprets an existing farm in Limburg. The starting point: the farmer remains, but the programme becomes more diverse. For construction, materials were harvested from the land and surrounding area: hemp, loam and timber. Ultimately, in addition to growing regular agricultural crops, the farmer in question can grow building materials such as hemp, for which there is a growing demand.

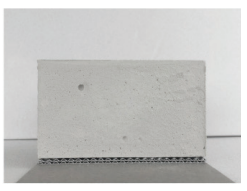


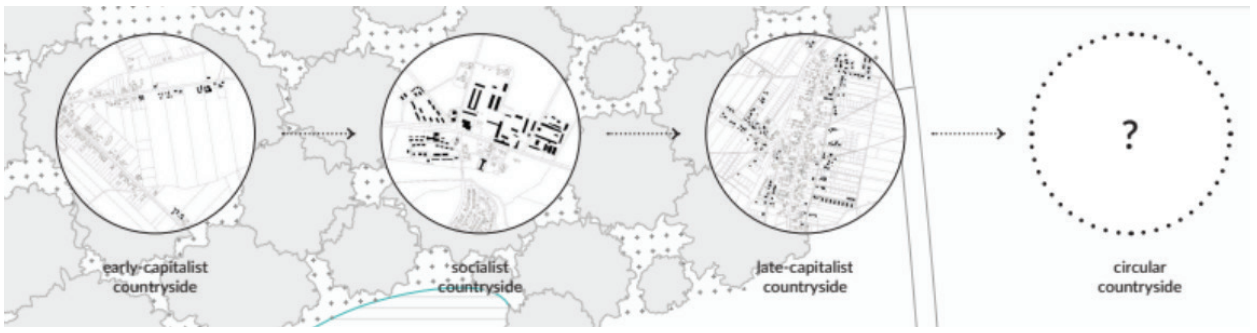


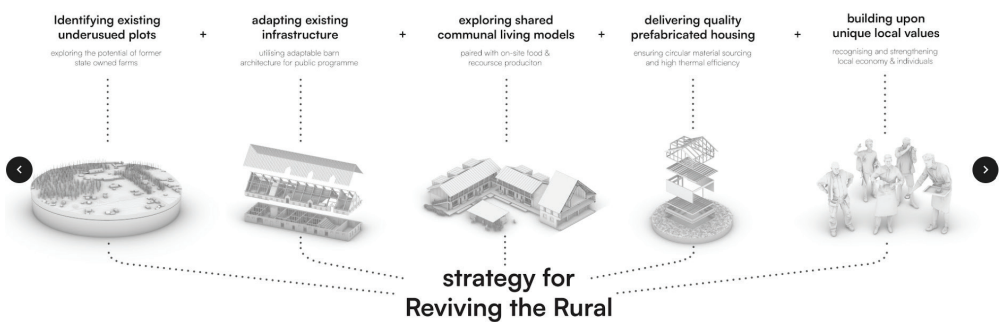








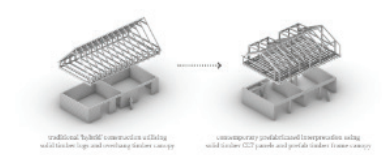




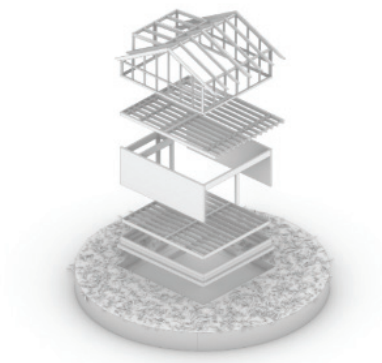
REVIVING THE RURAL

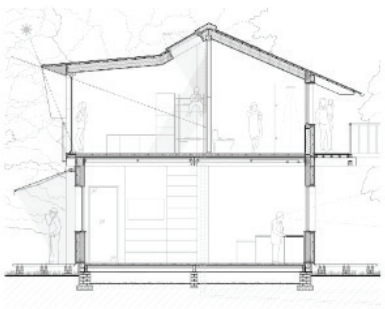
Michal Kasperski

The events that unfolded in recent years in Europe highlighted the need and the urgency for an increased local and regional resilience. Reviving the Rural – explores a new model of regenerative communal living for economic and social revival of the European countryside through strategic re-development of former State-Owned Farm typologies. If applied at scale, it envisions a more locally productive, globally-connected, economically competitive and self-sufficient countryside in a circular economy.


traditional 'hybrid' construction utilising solid timber logs and overhang timber canopy

contemporary prefabricated interpretation using solid timber CLT panels and prefab timber frame canopy


EXPLODED AXONOMETRIC showing key structural elements of a single housing unit: Inspired by traditional timber construction combining solid timber walls with overhanging timber frame attic.



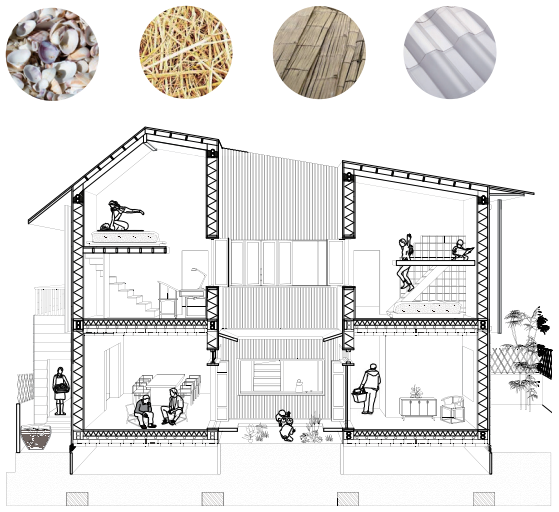
Program Harvest

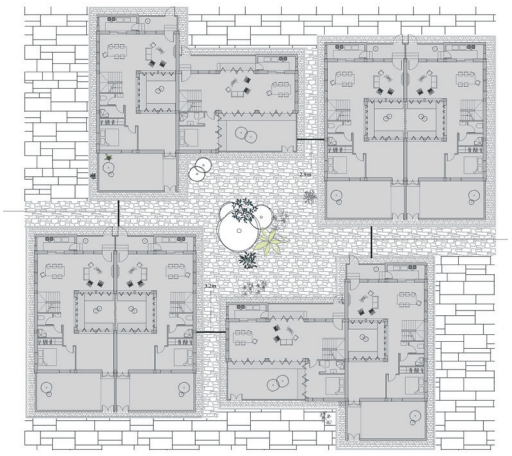
Production Sites

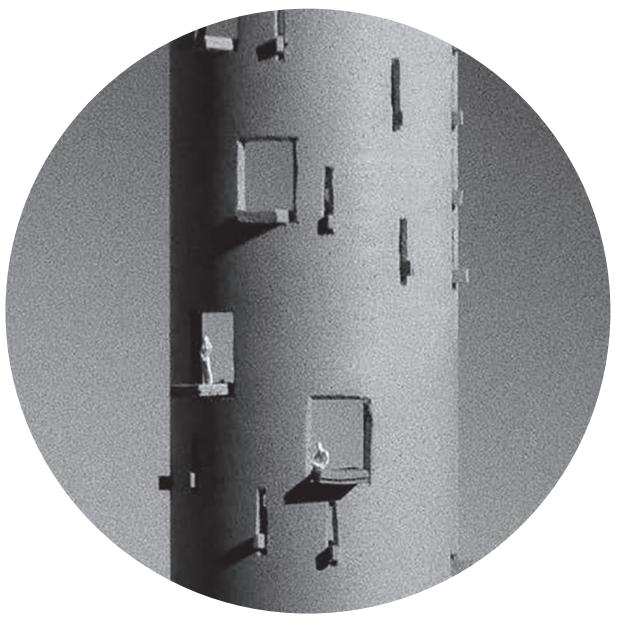
RICE STRAW VILLAGE

Qianyi Wang

This project focussed on the potential of rice straw in residential architecture in Zhejiang province. It evaluated three building methods, eventually selecting light straw clay for the design project of a village for both tourists and local villagers. The project aimed to create a synergetic model for the village, and by promoting the local rice industry, increase its added value.







ZERO WASTE URBAN CAMPSITE

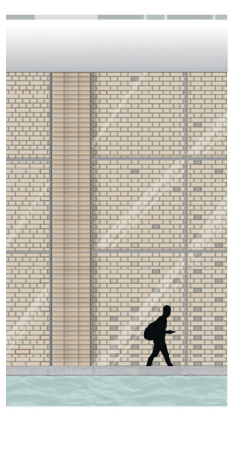
Kim Sinnige

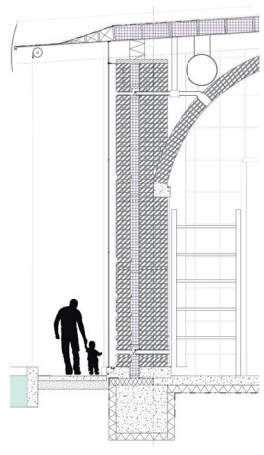
‘Zero Waste to Energy’ appropriates part of a massive industrial complex to embed values of circularity and act as a seed of change. Storytelling, Material Flow Analysis and design come together to create a parasitic and spiritual architecture, which weaves a vertical urban campsite and chapel into a chimney of the Netherlands’ largest Waste-to-Energy plant.

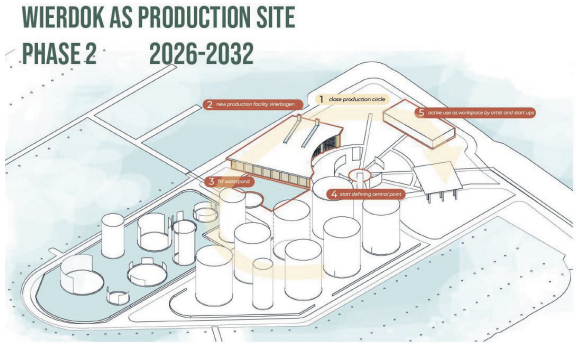
WIERDOK

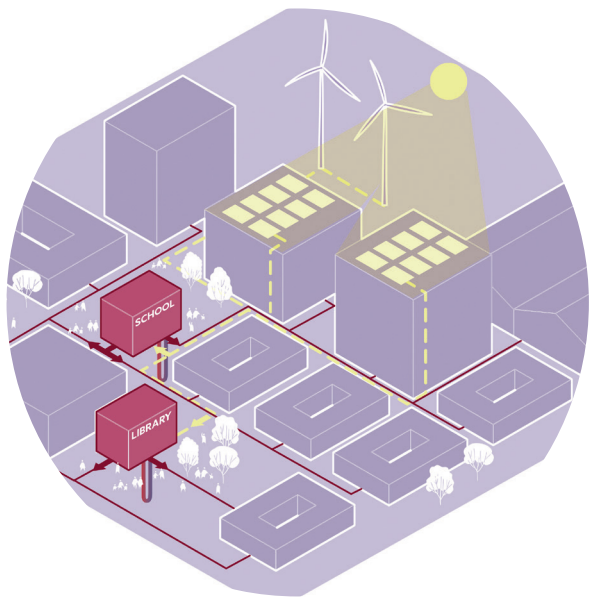
Rianne Reijnders

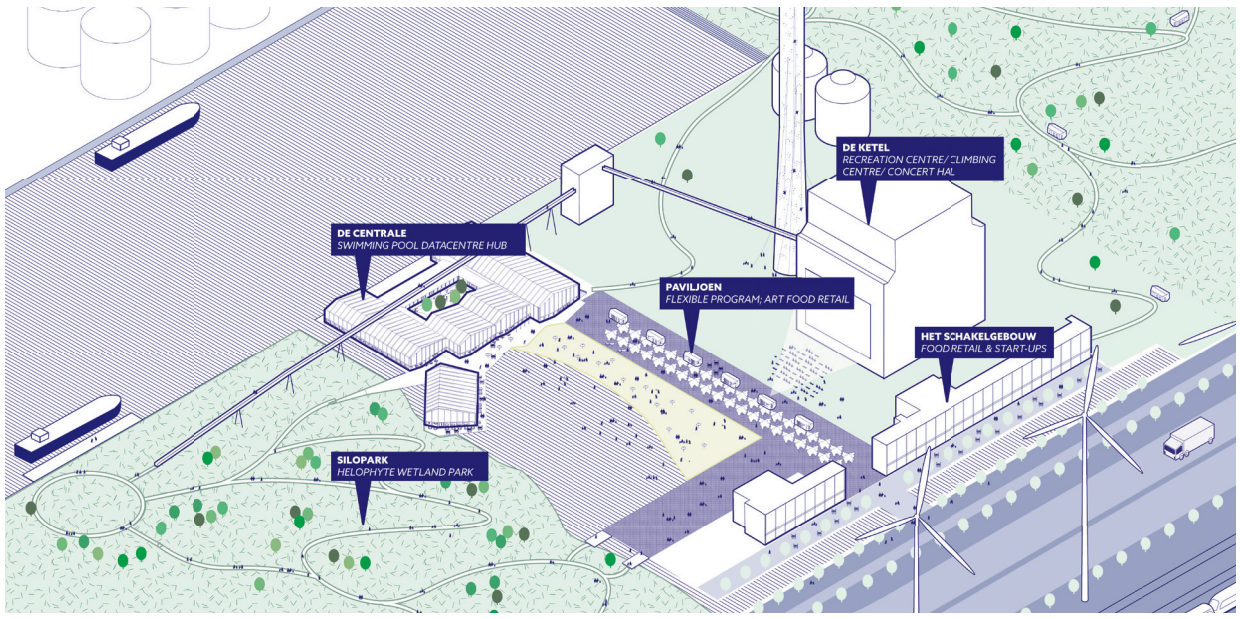
Wierdok is the transformation of the former Petroleumhaven in Amsterdam to a Seaweed farm, Seaweed loam brick factory and exploration site for everyday people. It exposed normal citizens to the option of sustainable building materials by highlighting the production process of the seaweed loam brick and the architecture it can create without diminishing the existing industrial harbor elements.







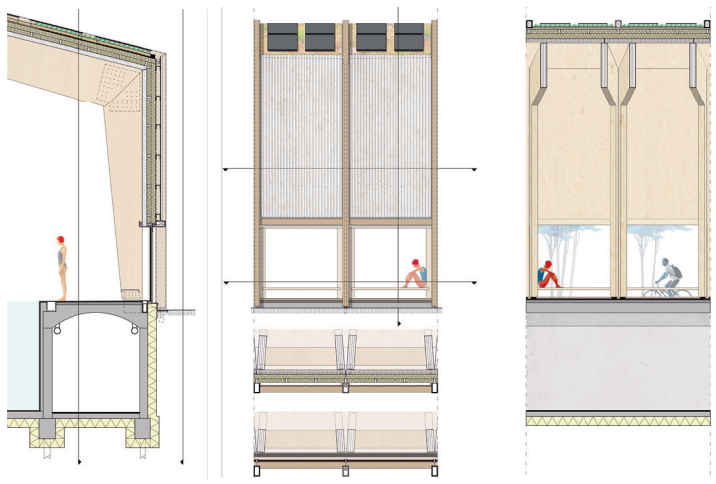


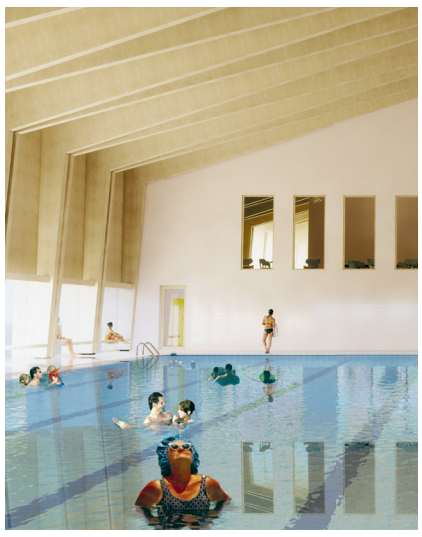


DE CENTRALE

Femke Groot

Amsterdam is planning build 70.000 homes and at the same time realize a 500MW datacentre in the industrial West Port. De Centrale is a decentralized datacentre integrated into a public indoor swimmingpool. Together with a mixed recreational and industrial program it manifests itself as an energyhub at the site of the Hemweg coal plant. The datacentre produces the full heat-demand of the swimmingpool, and the residential area of Havenstad.





Program Harvest

Passive Climate Approaches

RESILIENT MIGRANT HOUSING

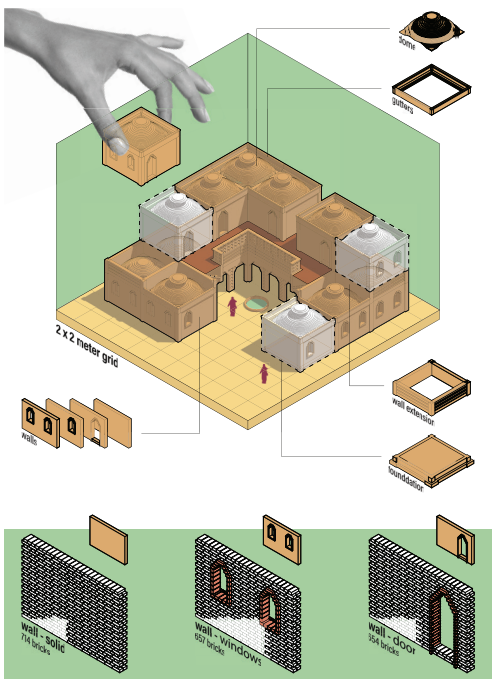
Pablo Gómez Ceelen

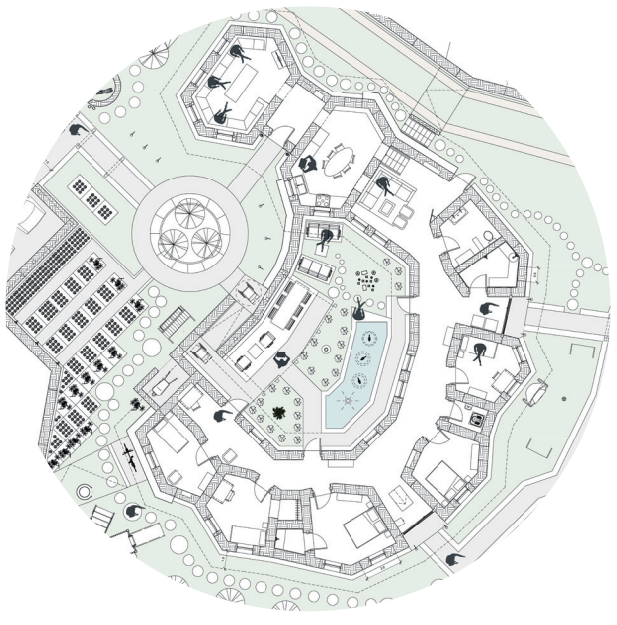
This project suggests a housing alternative for African migrants living in substandard housing in the region of Almeria. A collective that seeks local employment and works in the greenhouses of the agricultural sector. Promoting the production of compressed earth blocks and the construction of structures formed mainly with CEB. It results in comfortable spaces following passive climate design principles which foster social cohesion.

SHELLTERRA

Anna Kaletkina

ShellTerra is a reconfigurable shelter design for internally displaced people in Afghanistan that could be constructed from available materials, have easy assembly procedures, accommodate different functions and allow for healthy, safe, sustainable living for refugee communities. It proposes modularity and gamification for the settlement planning and creates a set of CEBs for easier construction and better customization.





WILDFIRE RESILIENT VILLAGE

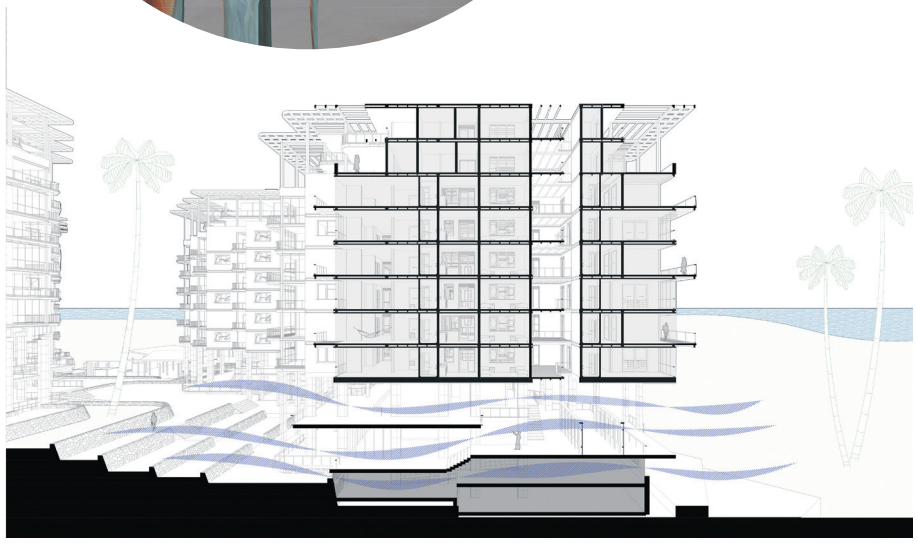
Ecem Kiliçaslan

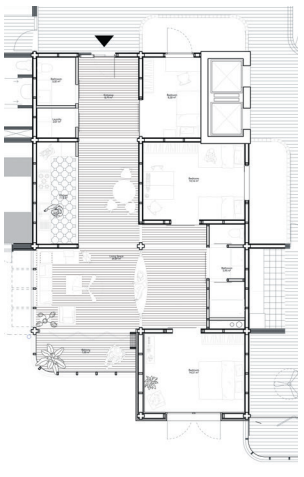
In 2021, villages in the Mediterranean region of Turkey were destroyed by wildfires. This project, called ‘Fusion Village Kalemler’, is being used to rebuild these areas in a way that is resilient to future wildfires. It involves local people, utilises local materials, and combines traditional solutions by innovating local skills and knowledge on self-building with earth and combining earth construction with innovative wildfire resilient solutions.

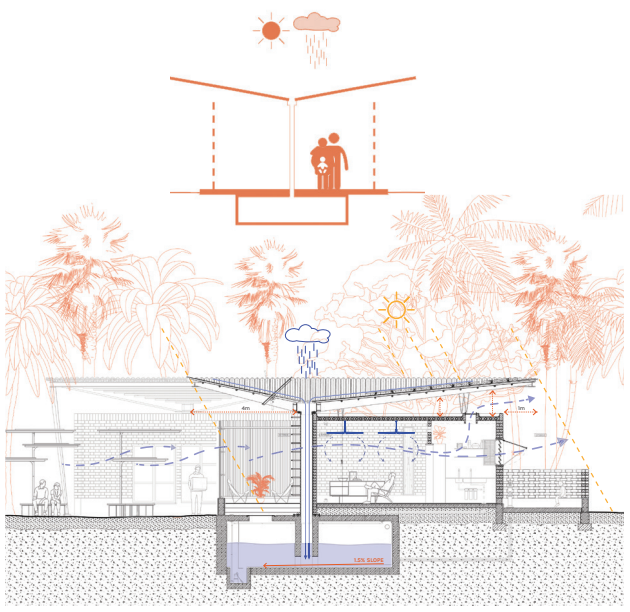
TROPICAL DWELLING

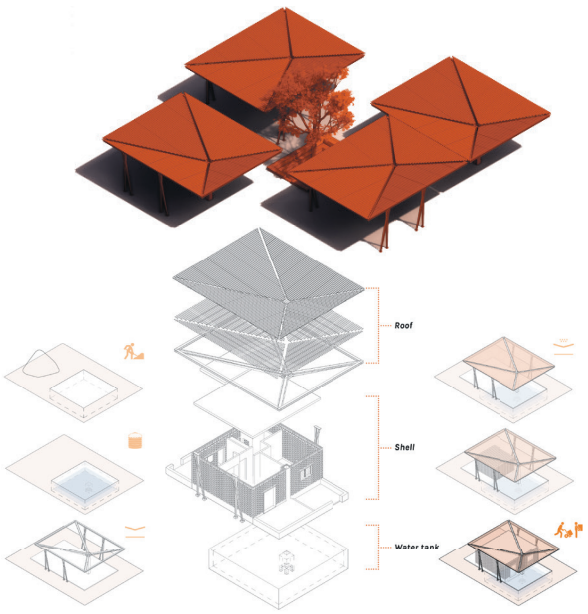
Santiago Reinel

Confronted with a rapidly moving real estate sector, architecture in Colombia has taken a turn in its principles by following prototypes or architectural models far from its tradition and its environment. This project goes into studying the climate sensible principles behind the vernacular architecture in tropical climates and reinterpreting them into a contemporary urban context. The project proposes a construction system mainly based on locally engineered bamboo.





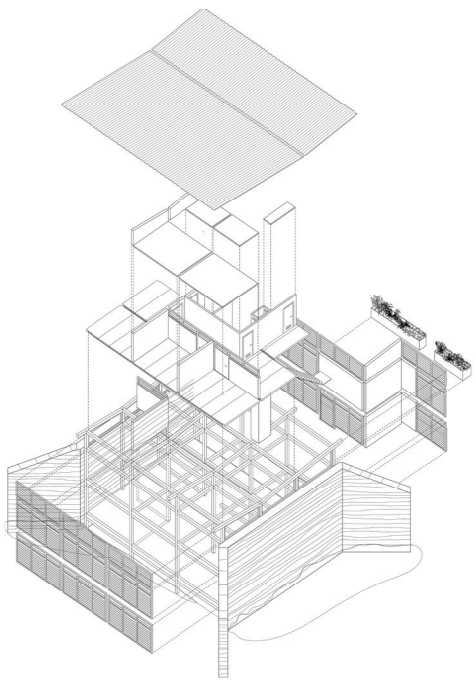


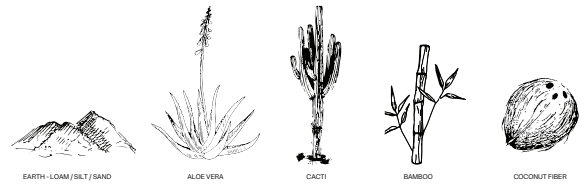


SUSTAINABLE CITY-VILLAGE

Camille Gbaguidi

This project explores sustainable construction and city development in Benin, West Africa, to improve the quality of life for its citizens. It focuses on using technology to maximise indoor comfort, ensure access to water and electricity, and preserve Beninese identity. It also offers a methodology that can be applied to other countries with similar climate and challenges.





BACK TO THE ROOTS

Yasmijn Quandt

In ‘Back to the roots’ the residential building standard on Aruba is reconsidered according to an ecocentric philosophy wherein humas live with nature rather than being superior to it. It proposes a nature-inclusive urban development strategy with passive climate-responsive housing, using local materials and involving the community in participatory design to create a circular building process.

Alumni

Interview with aE alumnus Edmund Thomas Green

When did you graduate @aE Studio?
I graduated from the aE Studio in the summer of 2021. In my graduation thesis: Homeless City, I analysed the pathways into and out of homelessness in Rotterdam and asked what role architecture should play. My response utilised open-building theory and circular technologies to offer a temporary live/work shelter to selected vulnerable groups. A demountable, modular, self-build construction kit facilitated residents with greater spatial agency; resulting in an adaptable neighbourhood, inhabited by a symbiotic community, aspiring towards self-sufficiency.

After your graduation you started your own company and now you work for MOOS. What does it have to do with your gradation project or preferences?
Shortly after graduating I started my own company, Atelier94, to facilitate working on several part-time freelance projects. I co-designed a cider brewery extension with Bouwtuin, led workshops on design-for-disassembly, and assisted the Circular Community Foundation with their online program. I really valued the experience of starting my own company. The autonomy of choosing which projects I took on and the excitement of a highly varied workweek taught me that working for myself is a challenge I relish. From February till September 2022, I worked part-time for Thijs Asselbergs Architectuurcentraale. Thijs and I worked closely together, investigating systeemwoning examples as evidence for the need to transition away from traditional building practices. We studied how the role of the architect is changing in response. I found that the aE discourse had already made me familiar with many of the practices required of the 'New Architect'. Since January 2022, I have been working for In The Middle Of Our Street (MOOS). Initially, I worked on a freelance basis, drawing construction details and illustrating their winning submission to the NH Bouwstroom. We found our working practices to be aligned and they soon invited me to join full-time. MOOS delivers affordable housing, made possible by a modular, demountable, highly innovative and sustainable building system. Many of the challenges I tackled in my studies are now my bread-and-butter; fulfilling the role of a 'Project Architect' to design and deliver circular, industrialised solutions for the housing crisis.

How does your background as architectural engineer influence your current role within the organisation?
As a graduate of the aE Studio, I am well equipped to the breadth of challenges related to design, technology, and communication we face daily at MOOS. I am positioned to contribute to aesthetical, graphical, technical, structural, operational and sustainable discussions alike – enabling me to support and advise multiple teams within the company. In turn, this fosters efficient communication and fruitful cross-collaboration. For example, I work at both ends of the design process. At the front-end, I'm responsible for project-level design and coordination to deliver on site. At the back-end, I develop component-level products for our system library. My connection to both work-streams allows me to capitalise on my background as an architectural engineer: lessening the gap between research and design, engineering and architecture, and sustainable intent and delivery. In short, MOOS is an ideal incubator for the practice and realisation of the aE studio ethos.

Where or how do you see yourself in the future?
My responsibilities at MOOS have also expanded to include those of 'Sustainability Officer'. Researching and vetting potential material collaborators allows me to interact-with and learn-from the cutting edge of sustainable technologies. This unique position will afford me excellent opportunities to invest in my education, thereby establishing myself as an expert in the field of circularity. However, it's important that my contributions are not only ecologically conscious, but socially conscious too. Architecture should be symbiotic with the roles that policy and community play. I aspire to expand my professional autonomy in order to make sustainable design more accessible and influence new chapters of circular and social innovation.

Interview with aE alumna Karlijn Besse

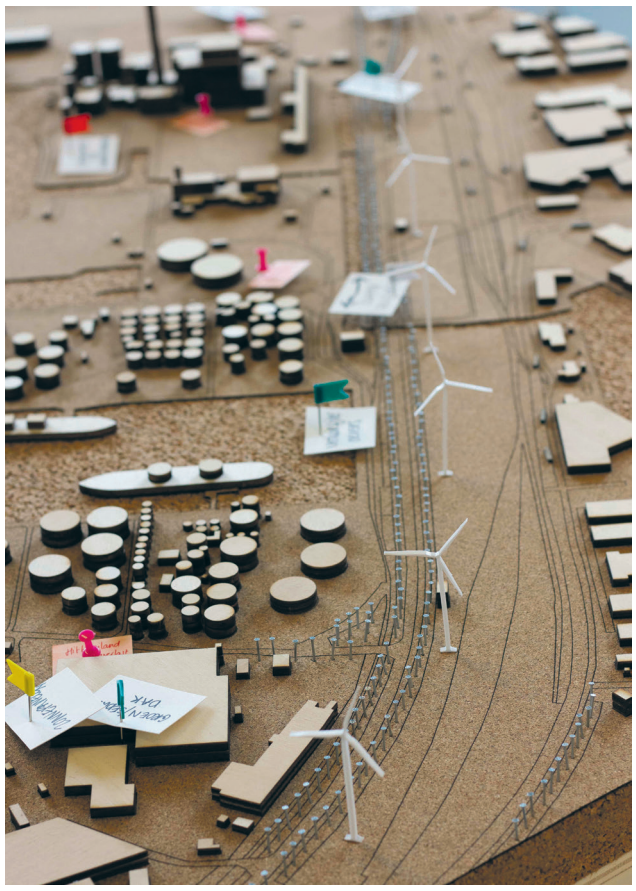
When did you graduate @aE Studio?
I graduated from Architectural Engineering in the summer of 2020 with my final project being Rehabilitating the Anthropocene - A holistic approach to the redevelopment of the industrial site of Shell-Pernis during the energy transition. The project was within the Harvest studio with Anne Sneijders, Nico Tillie and Engbert van der Zaag. The project's focus was on an active industrial site in the port of Rotterdam and how biobased solutions can be implemented in the landscape. The design project shows how Shell-Pernis has the potential to become a flagship site of the green industry where bio-economic and rehabilitating activities are shown to the world at large in order to educate and stimulate sustainable growth.

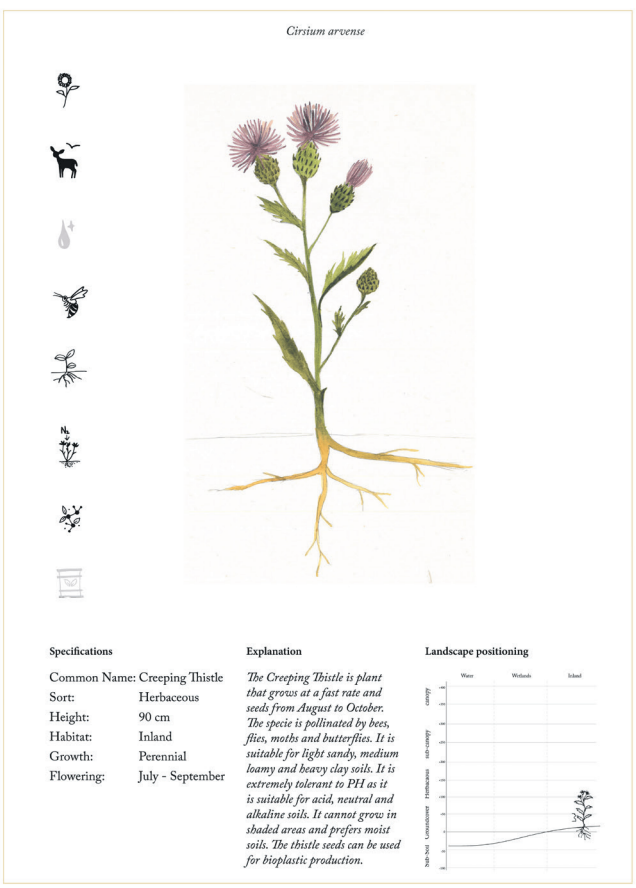
After your graduation you continued studying at Leiden University. What does it have to do with your gradation project or preferences?
After AE, I started my graduation for the masters degree Industrial Ecology with my project Urban Mining into Practice at the Institute of Environmental Sciences at Leiden University. In 2021, I started a multidisciplinary design studio called Other Spheres (founded together with Stefanie Tseggai). We applied for and received a subsidy grant from Stimuleringsfonds Creatieve Industry for the open call Prachtige productielandschappen to do our project Phyto Future. Phyto Future is a research and design project that builds upon my graduation project for Architectural Engineering.
Together with parties such as Gemeente Amsterdam, DS landscape architects and stakeholders from the area, I have developed climate adaptive strategies for the port of Amsterdam, specifically the Petroleumhaven. We have laid out the building blocks for an Eco-Industrial park that does not solely provide for industrial purposes, but also integrates the usage thereof for mankind and enhances the value for nature.

To receive insight into the interests and developments in the area, we have created a scale model through which we've interacted with the stakeholders. Afterwards, the scale model was included in the exhibition in Arcam, where visitors were able to give their input for the project.
Besides Phyto Future, I'm involved in other projects on different levels and scale size, such as small scale interventions at the Marineterrein in Amsterdam, teaching at the Academy of Architecture and consultancy on embodied carbon and Environmental Social Governance (ESG) in real estate.

How does your background as architectural engineer influence your current role within the organisation?
I believe that at the graduation studio of architectural engineering you are challenged to think and design that continues throughout different scales. Also, the continuous interaction between research and design, is something that I still apply in my everyday practice. In my opinion, an architectural engineer is defined by the always curious character and the tendency to ask why and how, no matter whether it is about a conceptual project or a one-to-one detail.

Where or how do you see yourself in the future?
In the near future I see myself collaborating with and learning from multidisciplinary professionals in architecture, (industrial) ecology and academics. I would like to be involved in research and design projects related to site regeneration and progressive sustainable architecture.
Overall, I want to specialize myself in the intersection of sustainability and (landscape) architecture and make a change in the business-as-usual practice of the built environment.





Graduation **Architectural Engineering**

Kick-off meeting aE Studio nr. 29, 8 September 2023

Design Tutors
Thijs Asselbergs
Annebregje Snijders
Mauro Parravicini
Mo Smit
Roel van de Pas
Stephan Verkuijlen
Thomas Offermans

Building Technology Tutors
Engbert van der Zaag
Ger Warries
Gilbert Koskamp
Paddy Tomesen
Pierre Jennen
Marcel Bilow

Research Tutors
Andy van den Dobbelsteen
Andy Jenkins
Christien Janssen
David Peck
Elise van Doorn
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Mauroparravicini Architects
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New Urban Networks
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Second Life | Annebregje Snijders | a.snijders@tudelft.nl
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COLOPHON

aE journal | Volume 13, no 01/04/2023

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Publisher: Chair of Architectural Engineering
Layout Design: Bureau Arjan Karssen BNO
DTP: Annekee Groeninx van Zoelen
Print: Zwaan Lenoir