



journal

aE studio / NR 10 2020/2021

aE/Intecture Making Impact on Architectural Innovation page 2

Collaborations @ aE/Intecture page 3

Architecture of Tomorrow @ **Second Life** page 6-9

Shared Heritage Lab @ Semarang Indonesia page 10-11

Work Experience @ **Alumni Interviews** page 12

Harvesting @ Parkstad page 14-17

1 Million Homes @ Open Building Lab page 18-21

Sint Maarten @ **Caribbean** page 22-23



News aE in action

Introduction Making Impact on Architectural Innovation

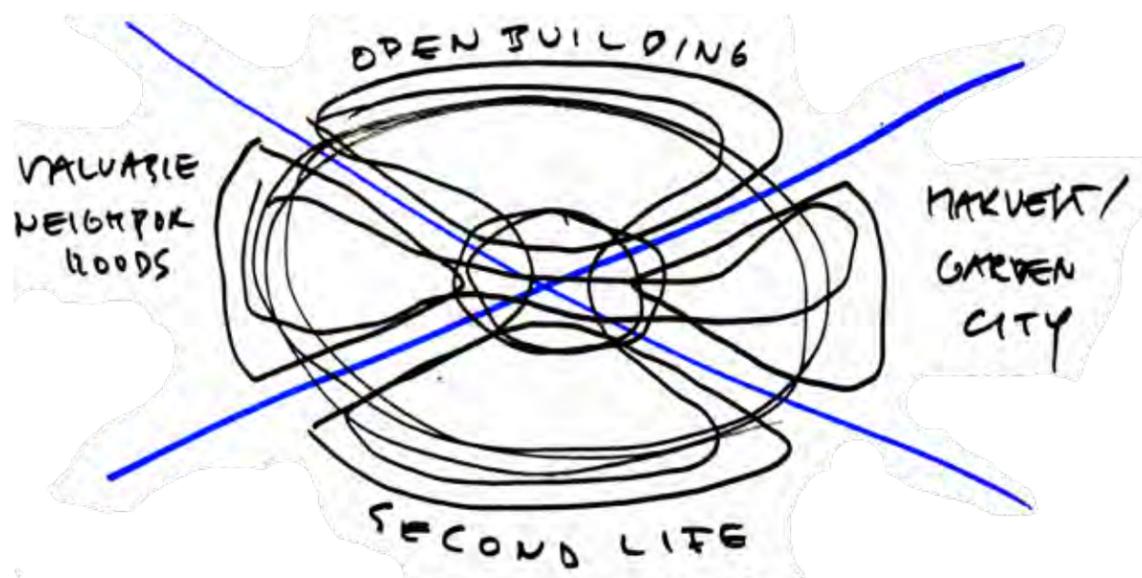
text **Thijs Asselbergs**

Integration of technology in architecture is the core and mission of aE. Students from aE are challenged to merge their technical fascination into an architectural composition. They anticipate the changing global building assignment. We want to integrate current issues and government agendas into the education program.

Therefore aE works closely with other groups within the Architectural Engineering + Technology (AE+T) department to strive for synergy. Innovations are stimulated and integrated in the master design education. aE works closely with Heritage & Architecture, Urbanism & Landscape Architecture in cross domain environments such as the Shared Heritage Lab and Harvest BK, seeking synergy between the various design disciplines. The Second Life project for transformation of post-war government office buildings is a collaboration with external parties such as Atelier Rijksbouwmeester and the National Renovation Platform NRP. In addition, we have been working for years on the preparations for the upcoming Internationale Bau Ausstellung IBA Parkstad in 2020-2021 in southern Limburg.

The building assignment is increasingly transforming into a replacement assignment. The expectation is that approximately half of the future building assignments will consist of reuse. It is therefore important that we not only focus on new design. We also like to work on innovative building design solutions behind the transforming task of the existing environment. In addition, the role of the architect in the design process is changing. How can the architect be deployed?

The DNA platform – in Dutch ‘de nieuwe architect’ - provides new insights into the shift in the position of the architect. For that aE also works closely with MBE to give form and content to the entrepreneurial Architect (eA). This puts aE at the center of innovation and contributes to the training of designers who make an impact on the necessary design challenges that this time demands. This aE journal shows the results achieved by our students.



Gevelbeurs 2020 Architecture of Tomorrow



Climate targets set for 2050 require new insights, considerations and possibilities for improvement within the built environment. The transition demands integrated, energy producing, adaptable and architecturally appealing examples. Students from the Building Engineering Studios and the Graduation studio did work for the Second Life project on a variety of typologies of the building stock of the Central Government Real Estate Agency. Strategies about re-use materials, energy producing architecture and flexible use did lead to inspiring examples that were shown at the Gevelbeurs 2020 in Rotterdam.

Archiprix 2020 aE Intecture Nomination



Can the reuse of existing components create a new language? Dominik Lukkes addresses this question with “The Reuse City”, selected for the Archiprix 2020. This project reuses locally harvested materials. In the former business area of Amstel III, an existing office building has been stripped down to its bare structure and rebuilt through selective “urban mining” and completed by the addition of circular timber components. The result is housing with a new architectural language, where form doesn’t only follow function, but also profits from the abundance of reused materials and green.

NRP Master Prize aE Intecture 1st prize



aE Intecture student Mary Lou van den Berg won the 1st prize of the NRP Master Prize 2019 with her graduation project “About the revaluation of passive climate systems”. She developed a convincing re-use strategy for a vacant hotel in the former colonial core of Bandung with references to local vernacular architecture. The jury greatly appreciates the careful design choices for the new users, the Bandung fashion community: “The combination of a social, educational and retail function gives empty buildings a realistic future and also leads to interesting cross-fertilization.”

aE in action News

Ongoing aE collaborations

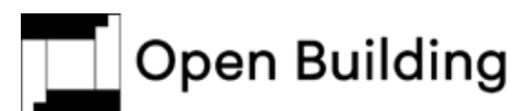


Open Building

Students from TU Delft put the social task for innovative housing on the map and visit numerous new housing plans by young entrepreneurial architects in and around Amsterdam and debate about their innovative task. Recently realized prize-winning designs such as Patch 22 by Tom Frantzen, Superlofts by Marc Koehler and Schoonschip by Space and Matter were visited and explained by the designers themselves. The plans were analyzed together with students from the Hogeschool van Amsterdam and presented

at the WAF. In addition, we are closely involved with the openbuilding.co platform that was established last year and we are discussing with John Habraken how his ideas can be further shaped within thematicdesign.org. Open Building is undergoing new advancements and is looking for innovative architectural solutions within valuable neighbourhoods.

Photo: aE students and teachers at Patch22



Second Life

"Second Life" addresses the major renovation challenge of existing building stock. How can we turn this technical and economical challenge into inspiring architectural designs for the city and its users? In collaboration with the Atelier Rijksbouwmeester, students from the BES as well as the aE graduation studio work on 5 representative case studies of the Central Government Real Estate Agency buildings. In different Q&A sessions experts from outside

and researchers from inside TU Delft did inspire with lectures about their latest ideas of PV design, renewable energy and flexibility added value. Students could reflect their work with the expert panel and currently work out their strategies which are being discussed May 14 together with the National Renovation Platform and Atelier Rijksbouwmeester.



aE Alumni Day



The New Architect in a Changing World

This year's aE Alumni Day has been organised on the 17th of December 2019 around the central theme of The New Architect in a Changing World. Six aE Alumni from all over the world were invited to reflect on the theme and tell about their graduation projects, their professional work experience and how this relates to the architectural craftsmanship they are developing. The presentations of Mingyoung

Kwon (PhD, TU Delft), Ruud Burger (Syb van Breda), Olly Veugelers (Bentham & Crouwel Architecten), Frederick Ulijn (Lingotto), Céline Mugica (Synopel Architects) and Dominik Lukkes (Archiprix nominee, Cie Architects) showed that aE graduates are very entrepreneurial and that they find work within highly innovative architectural work domains. Interviews with aE Alumni Adam Busko working in Denmark at Bjarke Ingels Group (BIG) and Olly Veugelers working at Bentham Crouwel Architects are featured on pages 12 and 13.

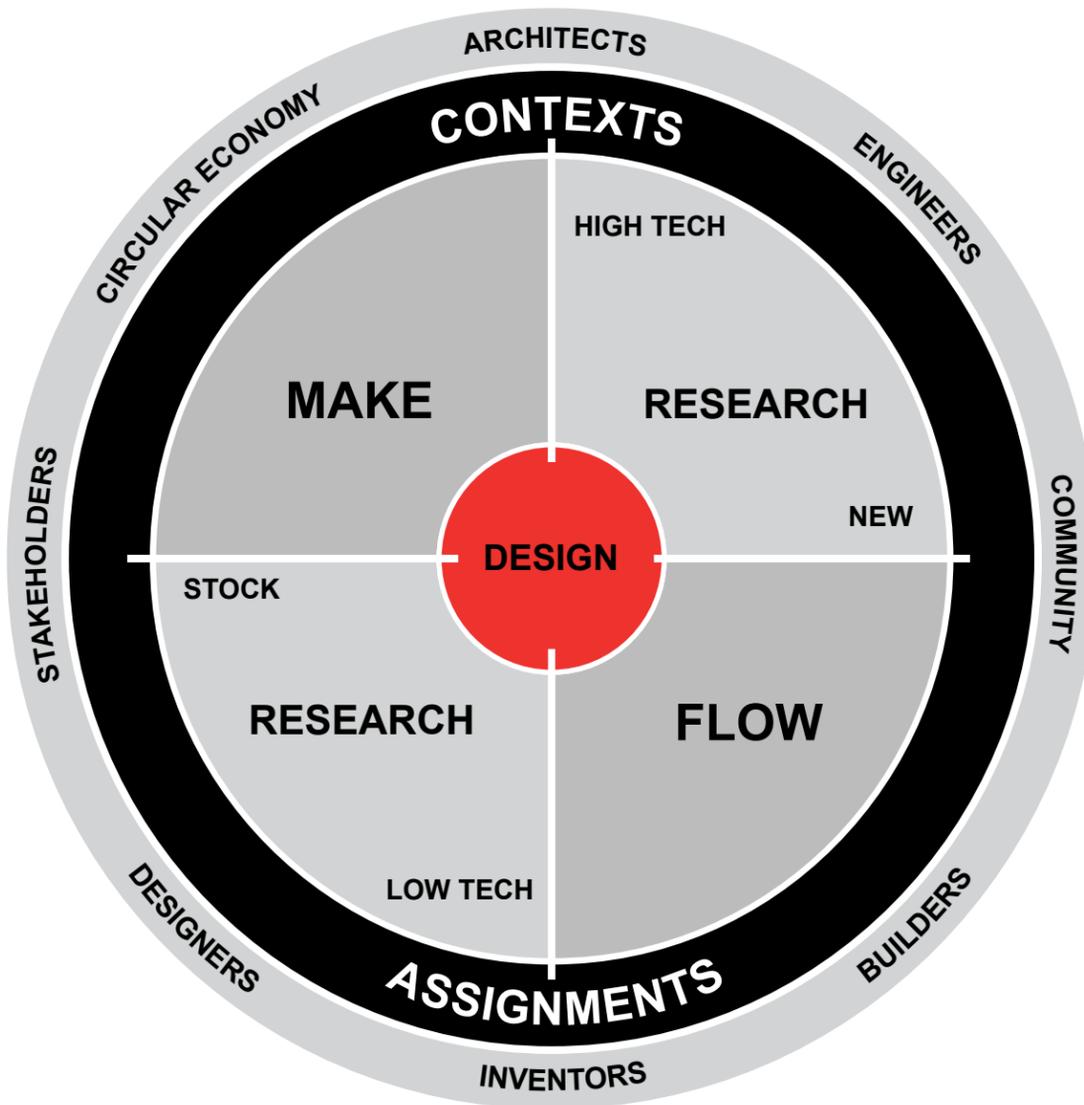
aE Intecture 23/24 Circularity Approach

This graduation year (2020/2021) two groups of students (aE Intecture 23 & 24) launched new projects. At the start of the two semesters they kicked off with the Pavillion Pitch, through which they introduced themselves and their technically inspired design fascinations.

aE Intecture further developed its circularity approach in collaboration with the Circular Built Environment (CBE) network of the Faculty. Assignments are connected to a real-life context and to corresponding stakeholders and communities. Students team up in solving societal issues by means of architectural engineering and design thinking strategies. On page 4 and 5 a summary of the aE Intecture approach and design programme is included.

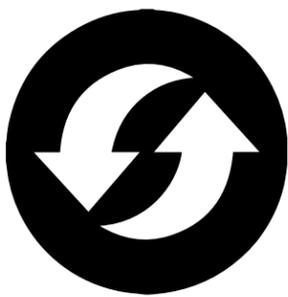


Introduction aE graduation studio



Approach

In the aE/Intecture 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/Intecture 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 /Intecture 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.



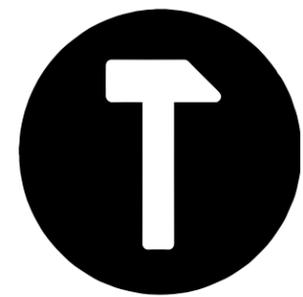
FLOW

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.

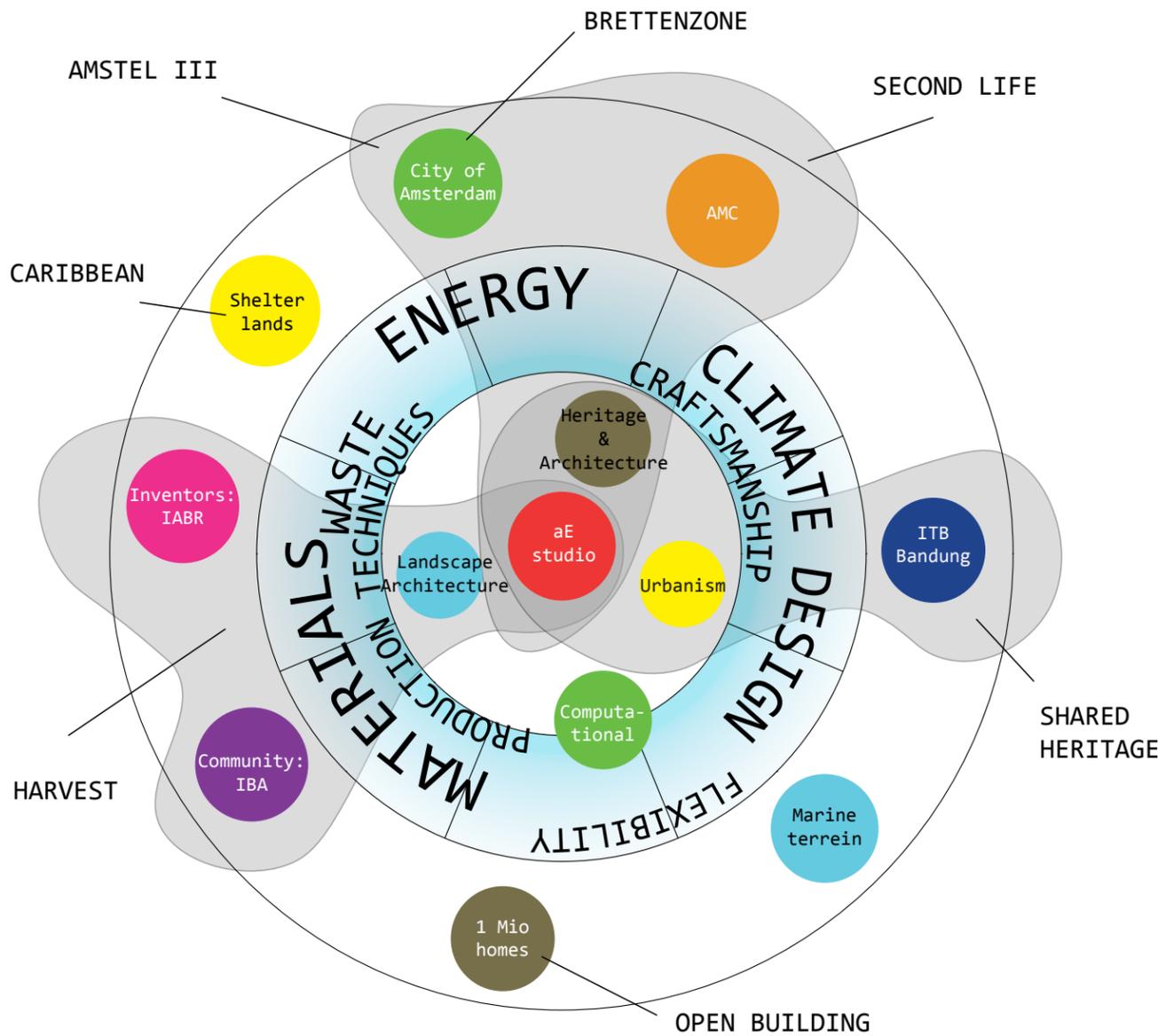


MAKE

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?

Assignment Introduction

Collaboration & Knowledge Exchange



aE/Intecture 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.

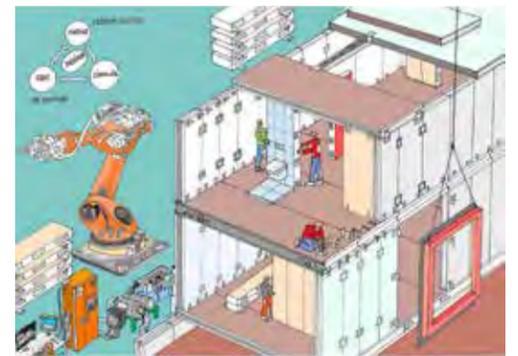
Agenda



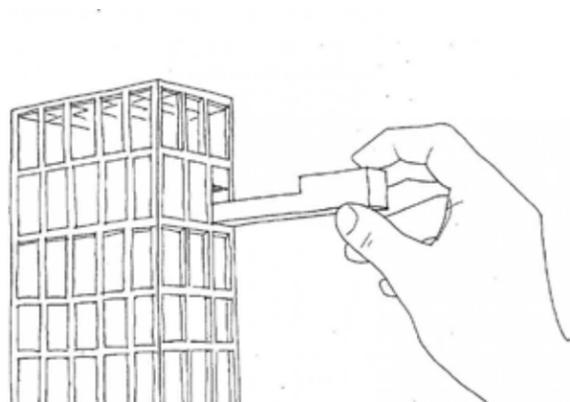
UN SUSTAINABLE DEVELOPMENT GOALS



CIRCULARITY



DIGITALIZATION



OPEN BUILDING



HARVEST



SECOND LIFE

Context Second Life

The architecture of tomorrow

text **Annebregje Snijders**

The building stock of the Central Government Real Estate Agency and the biggest hospital of the Netherlands are facing a major renovation challenge.

Climate targets set for 2050 require new insights, considerations and possibilities for improvement. How to deal with circularity and how do energy needs, indoor climate and renewal influence each other? What are the thoughts politically about energy and material use now this has been put on the agenda definitively? Which variants are possible and how is this balanced with the large investments aimed at achieving energy neutrality? How to deal with a lifetime or depreciation period of, for example, thirty years?

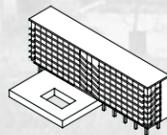
At the same time, these buildings also have an architectural value and value for its users. How to deal with that? How can these be improved and strengthened so that 1 + 1 becomes 3?

The renewal issue is broad, it is not just about providing a design solution but it brings together many aspects such as: the history of the building, the place in the city, architecture, the life cycle of buildings, management for planning, investing and organizing, and so on. A challenging and topical subject that requires creativity, inventiveness and visionary thinking from a broad spectrum of generalists and specialists. It is an interdisciplinary project with an integral assignment as the basis.



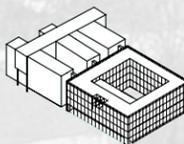
Dutch governmental buildings 1965-1995 revisited

5 CASE STUDIES



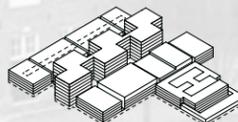
SLAB

TAX OFFICE, LEEWARDEN, 1970
PIET ZANDSTRA, DE CLERCQ ZUBLI & PARTNERS



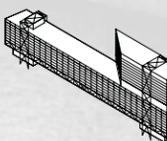
CARRÉ

PALACE OF JUSTICE ARNHEM, 1963
FRANK SEVENHUIJSEN



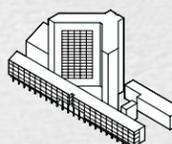
CLUSTER

AMC AMSTERDAM, 1982
ARCHITECTS DUINTJER & VAN MOURIK



TOWER

DE KNIP, AMSTERDAM, 1994
ABE BONNEMA



BRIDGE

EASTERN BRIDGE BUILDING, 1999
ZWARTS & JANSMA ARCHITECTS

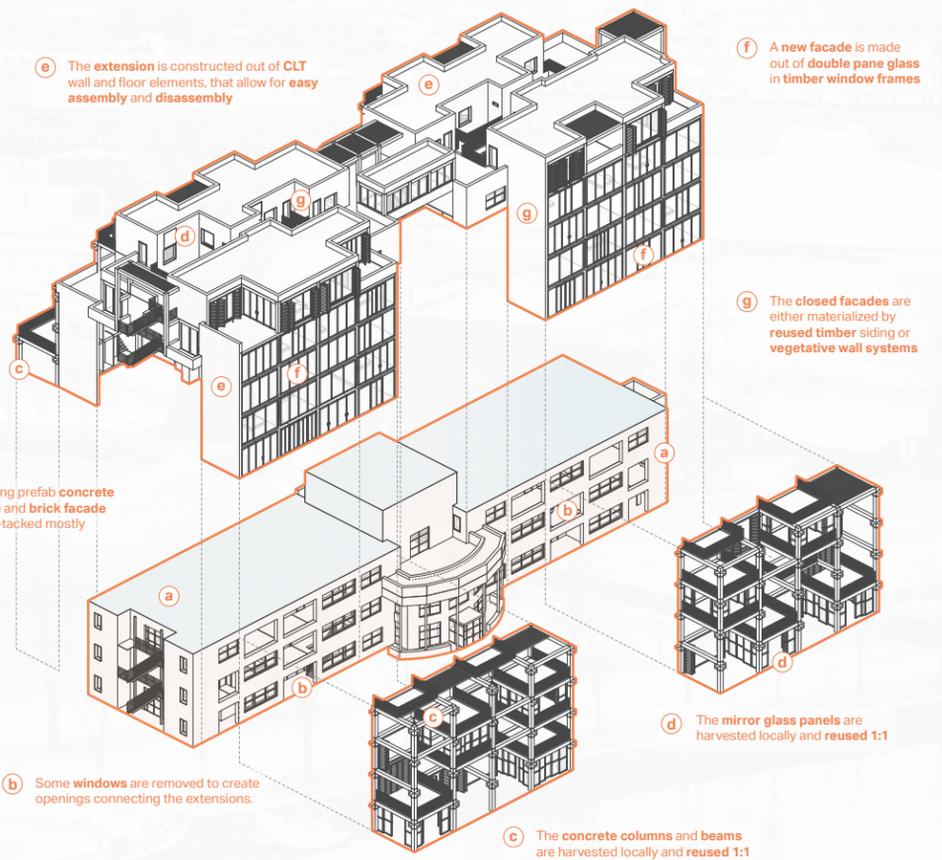
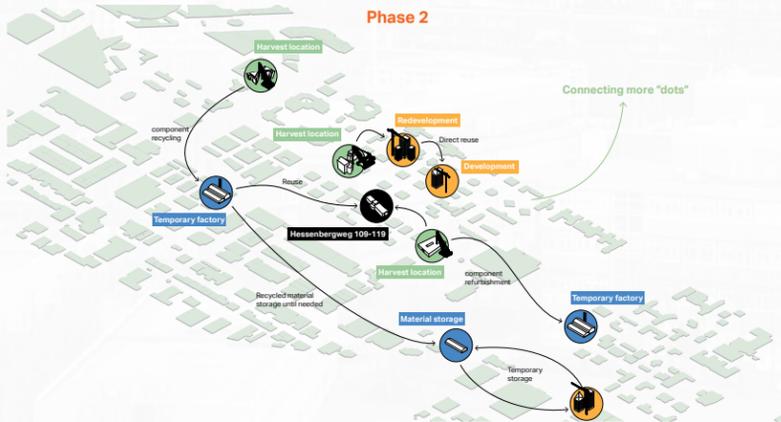
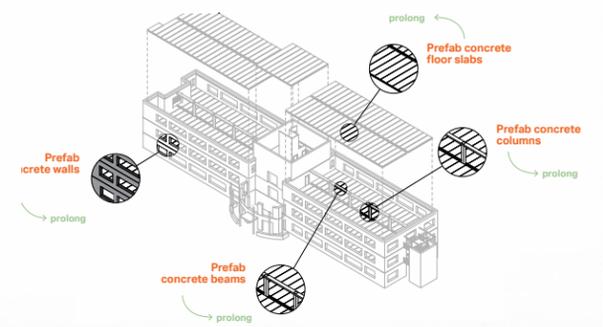


AMSTEL III – THE REUSE CITY

by **Dominik Lukkes**



Our excessive natural material stock is being depleted at an alarming rate. What happens if our most common building materials can no longer be acquired? This thesis shows the potential in reusing buildings and the components they comprise of by setting an example. An existing office building is transformed and expanded, where almost all building components the building currently is comprised of are reused, provided that they add to the building's aesthetic, functional and environmental value. Additionally, surrounding buildings that are up for demolition serve as material resources.



Context Second Life

The architecture of tomorrow

MATRIX BASED DESIGN

	ENERGY PRODUCING	ENERGY REDUCING	FLEXIBILITY	CULTURAL HERITAGE	MATERIAL CIRCULARITY
TAX OFFICE LEEUWARDEN					
PALACE OF JUSTICE ARNHEM					
DE KNIP AMSTERDAM					
AMC AMSTERDAM					
BRIDGE BUILDING THE HAGUE					

SECOND LIFE

Dutch Governmental Buildings 1965 – 1995 revisited

The building stock of the Government Real Estate Agency is facing a major renovation challenge. Climate targets set for 2050 require new insights, considerations and possibilities for improvement. The transition demands integrated, energy producing, adaptable and architecturally appealing examples. Students and researchers at the TU Delft are working on five representative case studies, commissioned by the Atelier Rijksbouwmeester and Amsterdam UMC. It is an interdisciplinary project with an integral assignment as the basis. Inspiring examples are presented.



CIRCULAR CONCRETE

by **Martijn Baelemans**



Efficient use and reuse of concrete reduces the environmental impact (CO₂) of concrete substantially. The direct reuse of a concrete structure or building elements reduces the environmental impact of concrete by 95% and 80% respectively. Concrete recycling is crucial in closing the concrete material cycle. Using an innovative and efficient crushing method, the Smart Crusher Technology is able to retrieve all original constituents of concrete, including cement. Concrete from recycled resources reduces the environmental impact (CO₂) with 70% when compared to conventional concrete production.



RE- NATURALIZE: DE KNIP

by **Yvonne Yuen Tsz Wai**



How can the transformation of De Knip improve local biodiversity and human- nature relationship in Amsterdam Sloterdijk?

The project aims to rethink the role of buildings in the urban ecosystem and the meaning of biodiversity design in two levels. From animal-friendly design to animal- oriented design, how can we shape a better built environment for the nature? What are the limitations and potentials of buildings as conservation tool? Understanding buildings as a host for activities that can potentially reconnect human with nature, what kind of natural- human interaction is appropriate in a workplace setting?



THE FUTURE FOOD SUPPLY CHAIN

by **Sebastian Brouwer**



In 2030 one in three will order their food online. This is expected to have major effects on the city congestion and the number of vehicles on the road. Do we, as architects, need to respond on this trend in order to keep the city liveable? I researched the effects of a proposed urban distribution centre: supply at night by cargo trams and deliver during day. The results: a significant decrease of movements and covered kilometres.



Context Bandung, Shared Heritage Lab

Climate sensitive revitalisation of post colonial Bandung

text **Mo Smit**

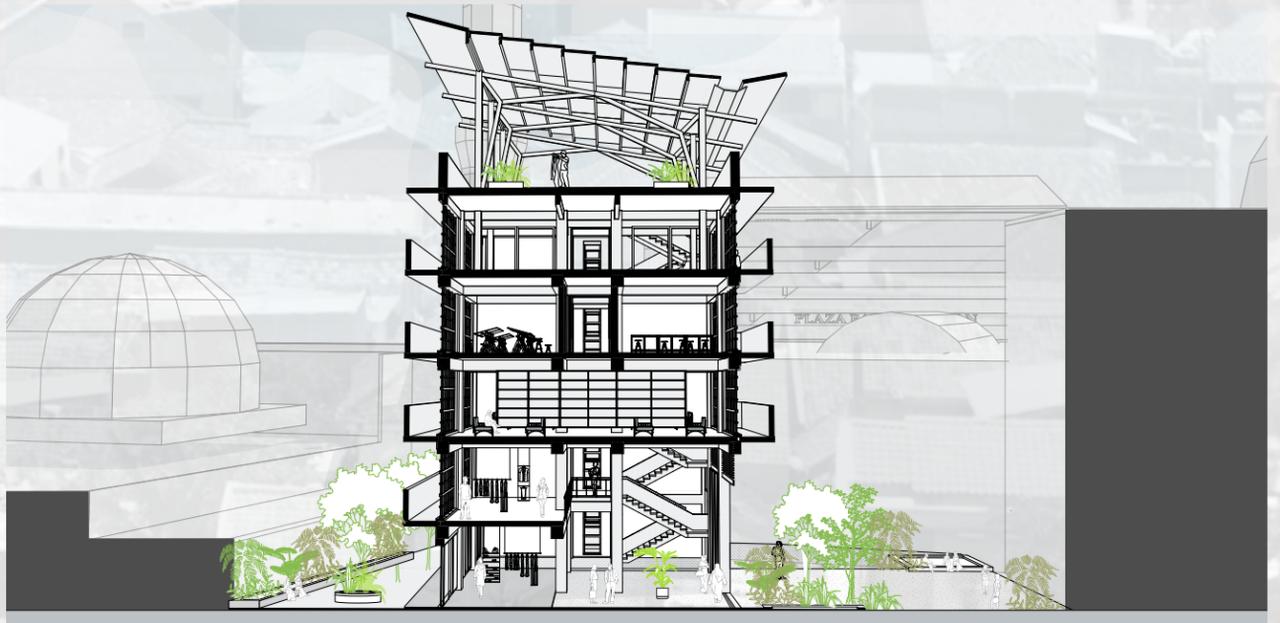
As a result of the long period of colonization by the Dutch, Indonesia has many shared heritage sites and buildings. The question for (landscape) architects and urban planners is how these sites and buildings can contribute to the development of sustainable former colonial cities.

The cities of Bandung and Semarang serve as case studies for the Shared Heritage Lab. The historical and future development of these cities is researched and explored, taking important urban backbones and neighbourhoods into account. A heritage-based placemaking approach is followed, including climate, habitat and building culture as the main design themes. Ultimately, the goal of the Shared Heritage Lab is to showcase Bandung and Semarang as examples of inclusive and healthy cities for working, living and leisure.

The Shared Heritage Lab is a cross-domain collaboration between Architectural Engineering, Heritage & Architecture and Urbanism (including Landscape Architecture) and the School of Architecture, Planning & Policy Development, Institut Teknologi Bandung (ITB, Indonesia). The lab is supported by the Royal Netherlands Embassy in Jakarta (Indonesia) and the Cultural Heritage Agency of the Netherlands.



Source: KITLV



PASSIVE CLIMATE HERITAGE

by **Mary Lou van den Berg**

A climate sensitive re-use strategy for a vacant hotel in the former colonial core of Bandung has been developed with references to local vernacular architecture. The heart of the existing building serves as a learning platform for the local fashion industry. The ground floor, the new building and the roof act as an inviting public and independent market, which is semi outdoors.



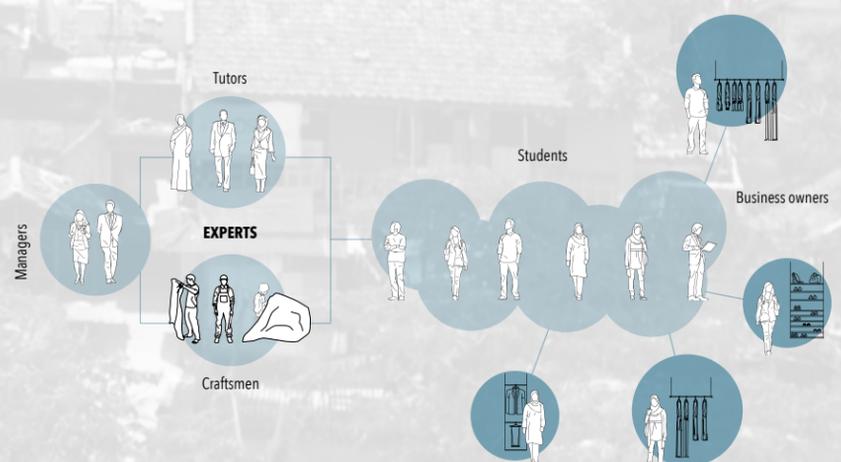
EDUCATION

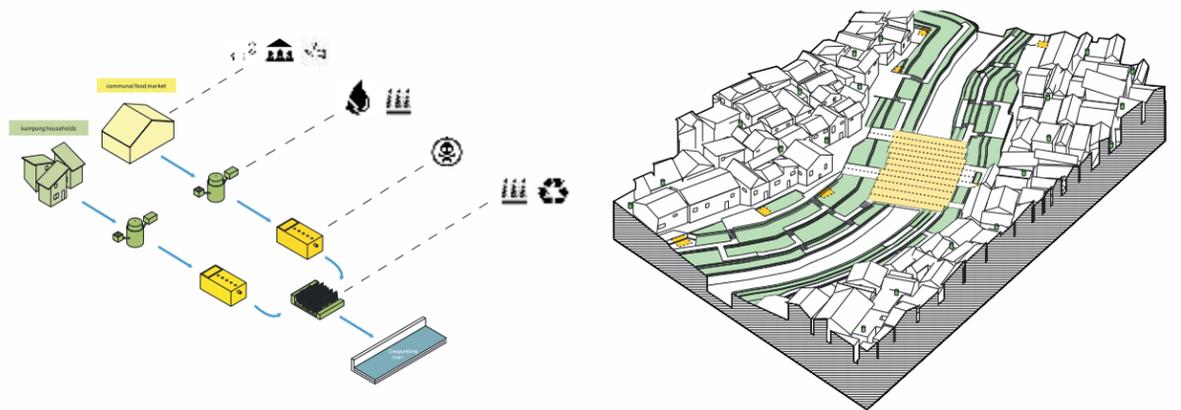


PRODUCTION



CONSUMPTION



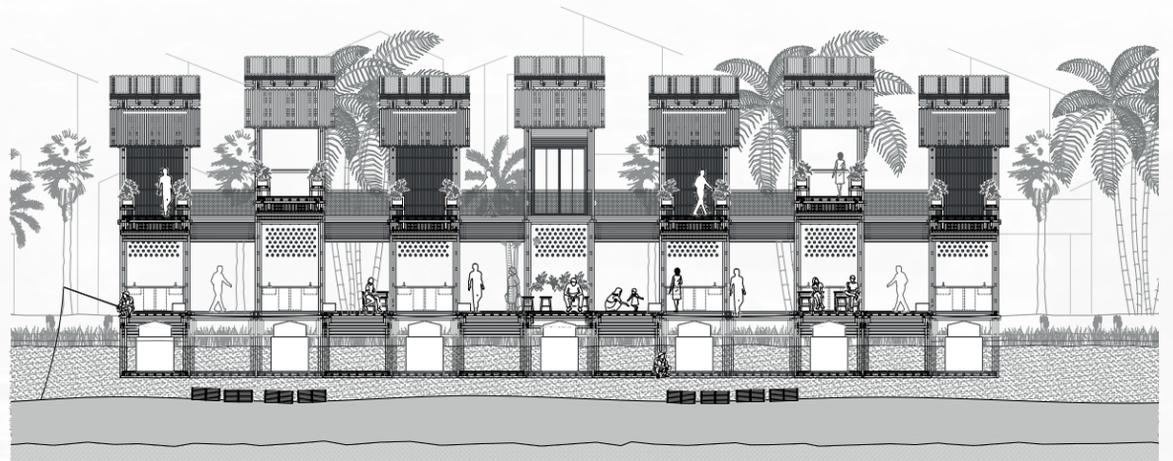


TAMANSARI FOOD BRIDGE

by **Rick Blankestijn**



A large amount of (organic) waste is being disposed in the Cikapundung River. As a solution a modular decentralized wastewater treatment system has been developed which integrates different public functions. Finally the Tamansari Food Bridge has been designed, which enables kampung dwellers to cross the river and benefit from the produced fertilizers and biogas by growing and selling food.



KNIL MAGAZIJNEN

by **Electra Pangalou (HA)**

The transformation of the KNIL Magazijnen into a creative and learning cluster of plastic waste constitutes an attempt to explore the boundaries of heritage-based adaptive re-use and how through the design of an inclusive and healthy environment, social and environmental challenges can be addressed in a more integrated way.



PASAR BARU RENEWAL

by **Nanne Knijff**

This project focused on the development of a climate sensitive densification strategy for historical city blocks within the Pasar Baru area, also known as Bandung's China town. Hereby the restoration of the balance between the 'inner' and the 'outer world' of the city block, through the design of an innovative biobased shophouse, was an important achievement.



PRAYING FOR WATER

by **Armin Fuchs**

A mosque complex as a decentral water management facility for riverside kampungs is being designed. An holistic circular approach is followed beyond the use of appropriate technical components. The organization, implementation process and integration of local stakeholders plays a main role in the project.

Alumni

Interview with aE/Intecture alumni Adam Busko



When did you graduate @aE Studio?

I graduated from the aE Studio in July 2017 with my thesis “Marineterrein 2.0 - Community of Innovation”, under the tutelage of Annebregje Snijders and Marcel Bilow. My project was an attempt to transform a former military base in the centre of Amsterdam, called Marineterrein into a Community of Innovation. Based on the research “Home in digital age - Apartments for young innovators” in which I investigated how digital nomads and young professionals work and live.

You worked at the office of Henning Larsen in Hong Kong and later to BIG in Copenhagen, does it have something to do with your graduation project?



Most of the projects I was involved in since my graduation were office buildings, while working on them I had a chance to put some of the ideas that stem from my research to use. For instance the Shenzhen Bay Super HQ Area Masterplan was a project in which the future of working was one of the main concepts.

Through discussions with my tutors and learning about new technologies that will drive how we build and design buildings I have formulated an idea of how the future of our profession might look like and on which skills should I focus on. This was a takeaway from the studio that was unexpected for me but a one that I value a lot.

How does your background as an architectural engineer influence your current role?

The studio thought me the “problem solving with design” method that became an integral part of my workflow. In my daily work I focus primarily on the design of things and my background helps me to always think about “how is that thing going to be build?”

I had the privilege to work on some very iconic buildings which often require a lot of ingenuity from the engineering point of view. My background helped my tremendously while collaborating with external structural engineers, it provided me with the vocabulary to convey ideas, and the understanding of structures.

How do you see yourself in the future?

For sure I don’t know where I will be living! But hopefully still working on amazing projects as I do now. In the future I’d like to leverage technology even more to my advantage, to work less but in more efficient way. I hope I will also have a chance to employ the “architectural entrepreneurship” learned at the studio to start a design side business. Maybe I will get a chance to start working remotely, to test one of the assumptions from my graduation project. And lastly I’d love to be doing more projects that are good for the planet.



aE Journal 10

aE journal appears for the tenth time. It is compiled by teachers from aE studio based on the graduation work of our students. It is a good reference work and overview of what we have done and gives students and others inside and outside our faculty insight into what we are doing and what we are working on today: that is of course for a better future of architecture in the built environment.



2010



2011



2012



2013

Interview with aE/Intecture alumni Olly Veugelers



When did you graduate @aE Studio?

In June 2018 I graduated with the thesis 'Playing with daylight' within the Architectural Engineering Graduation Studio, under guidance of Annebregje Snijders and Marcel Bilow.

My graduation project was a research about the relationship between daylight and sports hall designs. The subject chosen was based on my special interest in daylight. It was conceived when I lived in Sweden and Denmark during my studies. The contrast of availability of light in Scandinavian countries have led to the design of buildings with sophisticated daylight concepts whereby daylight is integrated in an aesthetic way within the design. But also the scarce light in winter and the long summer days made me personally aware of how important light is for

your own needs. Nowadays it is more desirable for daylight to be the prevalent form of lighting in most types of buildings. I think it is important to see how daylight can be an integral part of the design of abuildings because daylight is essential for the health of human beings. My graduation project assesses the arguments facing traditional sports hall designs, to identify whether more contemporary and creative approaches to the design of a sports complex can be made widely obtainable. With my design for a sports complex on the Marineterrein in Amsterdam I want to give an example of how you can integrate daylight within the design of a sports complex.

After your graduation you went to Benthem Crouwel Architects what does it have to do with your gradation project or preferences?

During my graduation project my focus on the design was finding methods and techniques to introduce daylight into a sports hall from exploring passive principles for the integration of daylight to the detailing of an optimal integration of the technical aspects.

Within my graduation project I was seeking for innovative design solutions in relation to daylight. At Benthem Crouwel Architects, the designs embody our fascination for solving complex problems just like the attention afforded to the smallest detail. The application of new technology and innovation plays an important role at working

by Benthem Crouwel Architects.

How does your background as architectural engineer influence your current role?

To me, architecture and engineering are irreversibly connected. The integration of architecture and technology is the driving force behind innovation. I think that my background as an architectural engineer ensures that when designing, I am always looking for innovative architectural solutions. Technological innovations are to me an inspiration for developing new sustainable concepts. With the integration of architecture and technology we can design buildings that enhance our standard of living and improve our quality of life.

Where or how do you see yourself in the future?

Daylight within architecture is one of my greatest interests. Besides my work, I have become a board member of Dutch Daylight, a platform that actively promotes the use of daylight within the built environment. Together with this platform we want to indicate to architects and urban planners the high potential of daylight, and also to make clients and other parties aware of the importance of using daylight. Daylight has an effect on our biorhythm and our health. It is therefore important to continue promoting the value of daylight.



2014



2015



2016



2017



2019

Context Harvesting in Parkstad Limburg



Strategies for strong productive and recreational landscapes

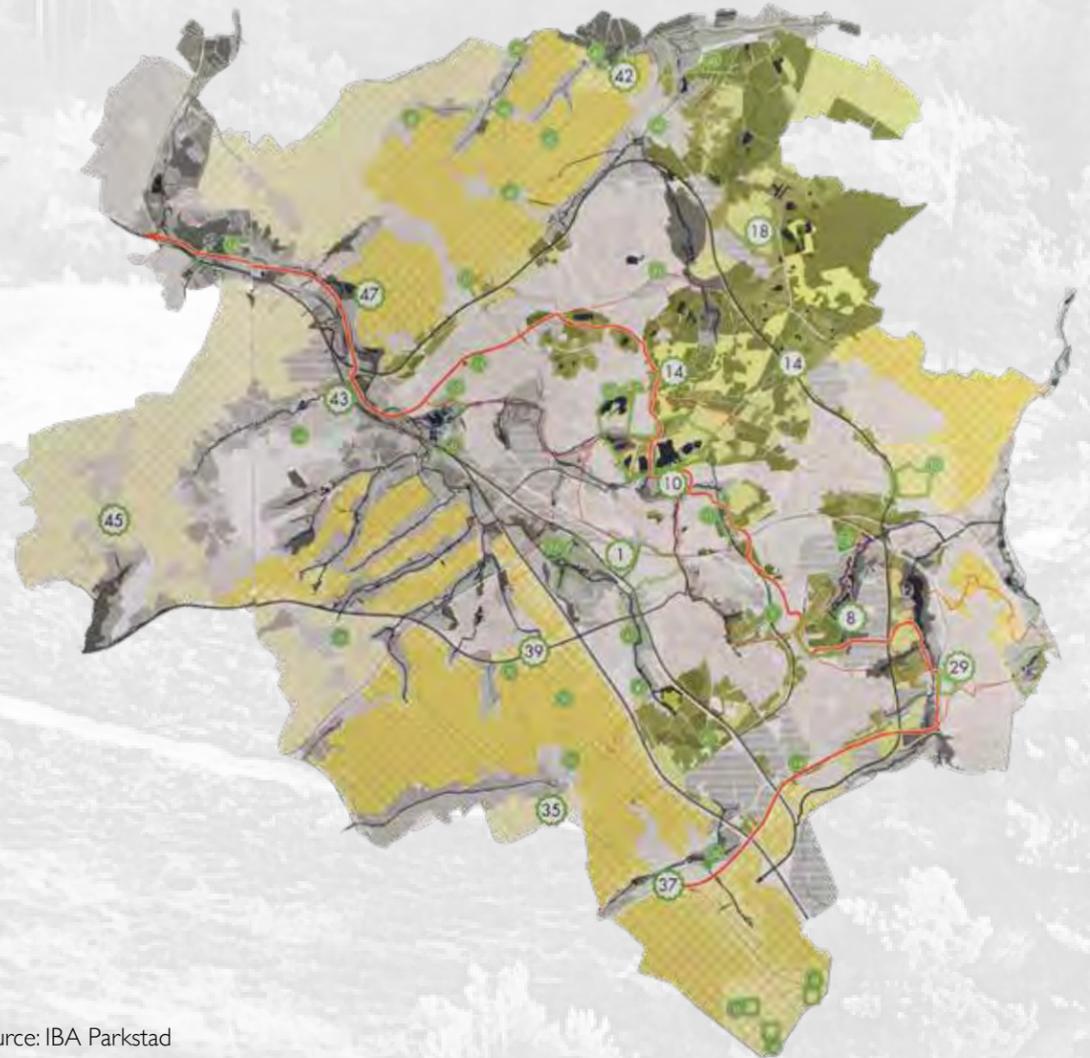
text **Annebregje Snijders**

2020 will be the year of the Internationale Bau Ausstellung (IBA) in Parkstad Limburg. A phenomenon originally from Germany with a great tradition of innovation in architecture and urban planning. Students from architectural Engineering and Landscape Architecture took the change to experiment with ‘flow based’ designs leading to strategies and structures for strong productive and recreational environments.

In the new economy the the proven strategy of maximizing scale and saving costs on one hand and betting on the knowledge economy on the other hand offers insufficient prospects for the Dutch city.

What if .. we see demographic shrinkage in the South of Limburg as a possibility to strengthen Parkstads identity with opportunities for a new and circular economy?

Research has been done in the working fields of metabolism and local conditions. Some of them are grounded in the international regional scale, in the natural layer, while other flows are grounded in the object or urban layer. Water, material, energy and food are starting points for interventions leading to interesting new programs, joy and quality of life.



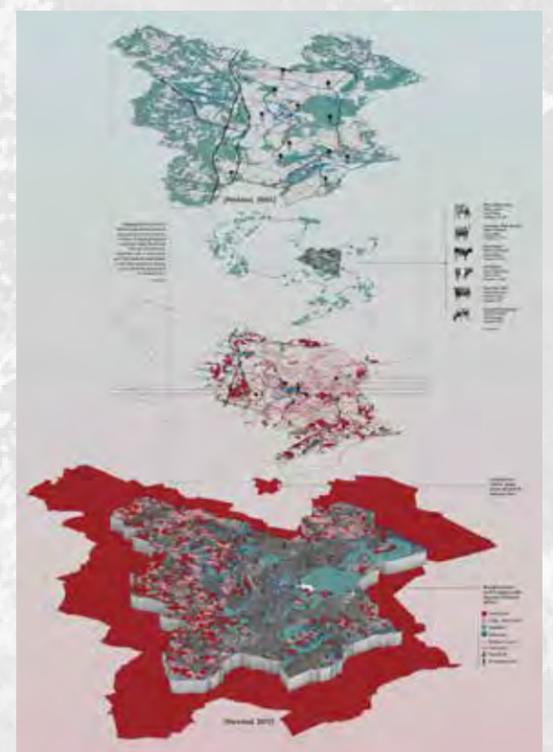
Source: IBA Parkstad

CULTURED MEAT FACTORY



by **Helena Daher Gomes**

Cultured Meat Factory has the overall goal to understand how technology can change society, I chose to speculate on the future of food production. Bioengineering has offered us tools to produce meat without the slaughtering of animals. The meat factory works as a cooperative model. The cultural aspect of the program enhances community participation on the decisions regarding the production of the food itself but also, through the “bio-hacking labs” allow the common folk to understand and replicate those techniques, further developing the technology itself. The idea of a new production facility that doubles as public square creates potential community engagement, by which new greener and ecologically oriented opportunities arise to recreate Parkstad as a future Gardencity.

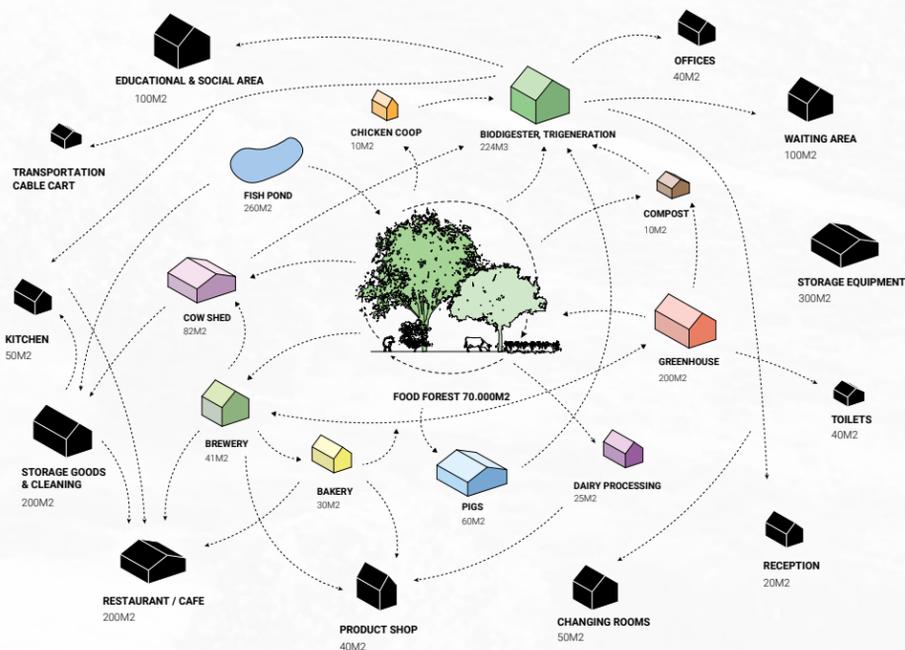




THE FOOD PRODUCTION

by **Kees Fritschy**

As a reaction to the current agricultural system, a pioneering movement where a variety of nature is combined with agriculture to create a healthy biodiverse productive landscape has surged. This architectural principle proposes a relation to the landscape, by supporting a collaborative food production system as well as providing a qualitative experience that includes participating, growing and processing. In the context of the village this will become a motor for local development, both economic and social. In the context of Limburg the project proposes an alternative agricultural model that brings food and people together.



Context Harvesting in Parkstad Limburg



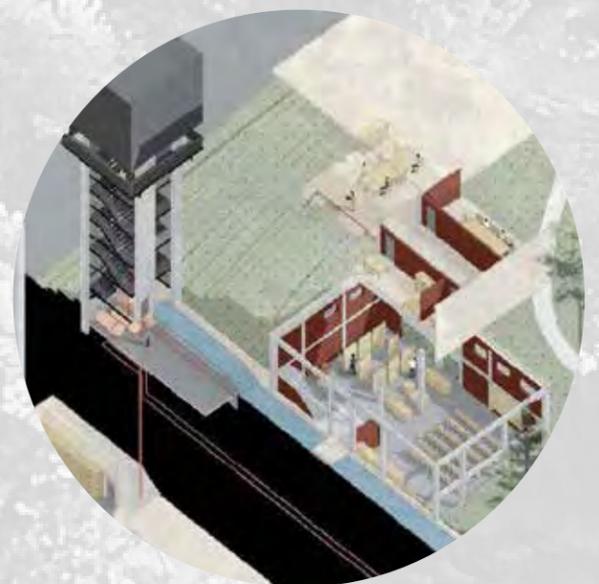
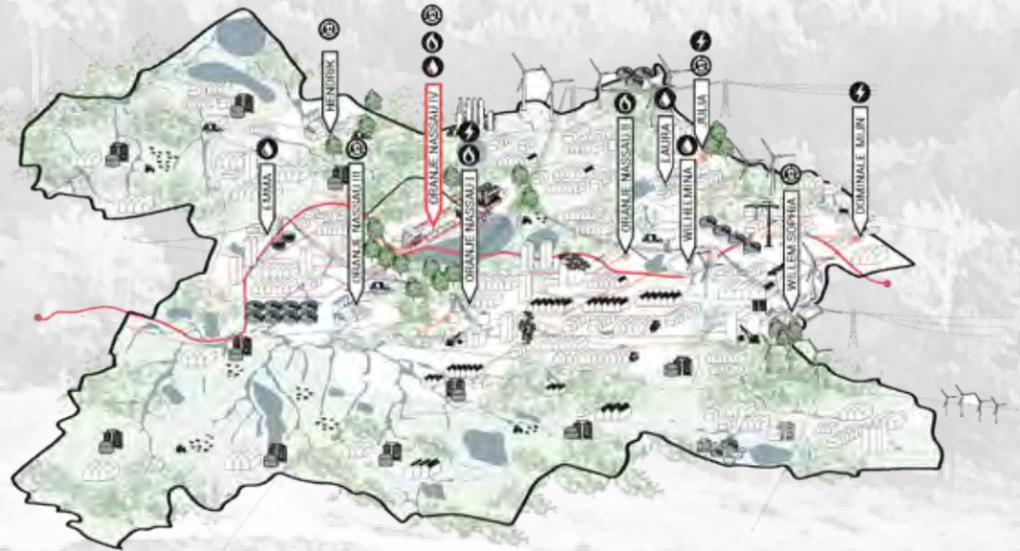
Strategies for strong productive and recreational landscapes

REVITALISING PARKSTAD



by **Kim Hooiveld**

Revitalising the ParkSTad, a linear park with a circular approach - is an architectural strategy that demonstrates how Parkstad can make use of its environmental deficit of the past to shape its future. By generating an overview of the input and output on energy, water and materials flows of the urban metabolism of Parkstad Limburg, a strategy was proposed to improve the resource efficiency to become a circular economy. The most important component of this strategy is the central park situated at the former Oranje Nassau IV mine where mine water is purified. Here people are able to experience how these flows come together.



THE FUNGI FACTORY

by **Sarah de Bruin**

The project researches the possibilities of applying fungi through different scales within the built environment, using different organic waste streams of local industries. This living organism mycelium can transform this waste into valuable new building materials. This way a symbiotic entanglement with the ecosystem can be arranged by literally implementing living organisms within the architectural design.



JOYFUL RURAL LIFE

by **Qianwen Tang**

Facing current rural problems in China, circular agriculture is a solution for rural revitalization. The cooperative farm with positive food and energy flows is designed to convince people to stay and come back from big cities. It suggests local villagers and visitors could enjoy a rural experience while visiting the building, that in terms of rural culture, green energy producing and rural landscape.



SYMBIOTIC SURFACES

by **Joshua Ho**

The aim is to design a water purification complex that integrates functional processes and architectural design to reinvent the cycles of water and energy. This project explores how the pumping out excess mine water blooms into catalytic modes of function, nourishing both land-replenishing local water sources and ecosystems, and people- providing energy, food and sculpting social interaction.





DEMOLOGY

by **Szymon Lapaj**

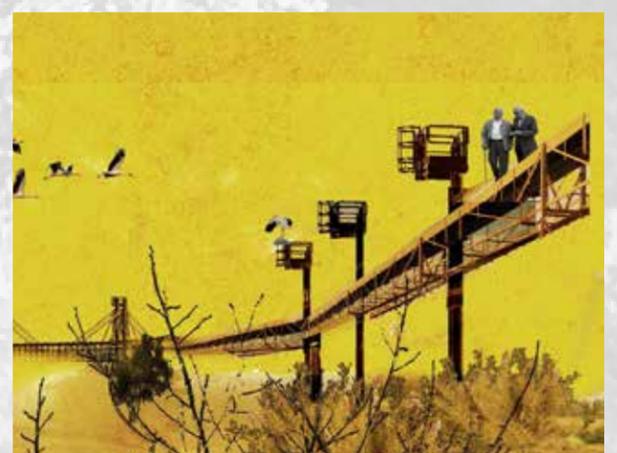
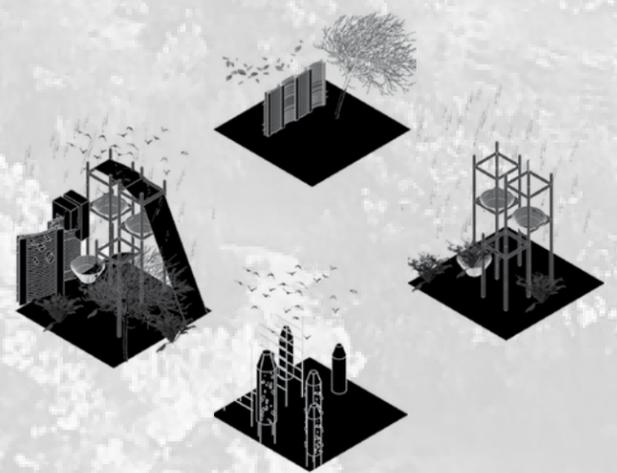
Demology is the story about the shift of regional identities: from Coal Mining into Urban Mining. Parkstad for centuries appeared as material landscape. Materials were mostly excavated from the ground. Today we can obtain precious construction materials from existing vacant buildings through demolition and recycling (urban mining).



SHIFTING SANDS

by **Maria Kaik**

In the shrinking Parkstad Area, where the former instruments of financial accumulation are left unattended, a series of architectural interventions will form an interdependent network. It is a strategy for reassembly of the former infrastructure into devices which stimulate the ecology. Developed over time, they can react to the dynamic changes in the ecosystem.



Context | Million Homes

The social task and innovative housing

text **Thijs Asselbergs**

Many people in the Netherlands cannot find a suitable home and that is why there is a call for 1 million homes by 2030/2035. This extensive and urgent social task is important for the future well-being of people, spatial planning and the Dutch economy.

The building assignment also has a major influence on transitions that are going on, such as the energy transition, the care transition, the interpretation of a participation society, making impact on valuable neighborhoods and the transition to a circular society. However, a vision of the assignment and how to realize this is missing. The Faculty of Architecture wants to contribute to this innovation through research and education. For aE it is a good reason to innovate housing to the maximum and we are looking for smart, industrialized, flexible, sustainable and circular solutions. This is possible both for new design and for the transformation of the existing housing stock.

On the basis of three themes, aE studio continues to work on design research for the assignments of IMhomes.

- Mass Customized Building systems (MaCuBs)

Externally we work together with the Bouwlab/3DMZ, The New Makers, Bloc, Raumplan and Marineterrein / Municipality of Amsterdam. We are always looking for new designing, producing and developing parties that can help us to be as innovative as possible.

- Building lab / 3DMZ

With Bouwlab/3DMZ <https://www.3dmakerszone.com/bouwlab.html> there is collaboration on prototypes for smart, industrialized building.

For example, it is being investigated how a 2.0 version of the Circle House from visiting professor Kasper Jensen <https://gxn.3xn.com/project/circle-house> can be realized.

- open building.co + Thematic Design

In close consultation with John Habraken (formerly SAR, foundation architecten research), the Thematic Design website <https://thematicdesign.org> is being further developed. At the same time, cooperation was sought with the housing design platform: <https://www.openbuilding.co>. Students take part in meetings at ARCAM (architecture center Amsterdam). During the WAF (world architecture forum) in December 2019, a manifesto was launched and there is a collaboration with the New Institute in Rotterdam.



Photo: Haiti house Pieter Stoutjesdijk exhibited at Bouwlab / 3DMZ

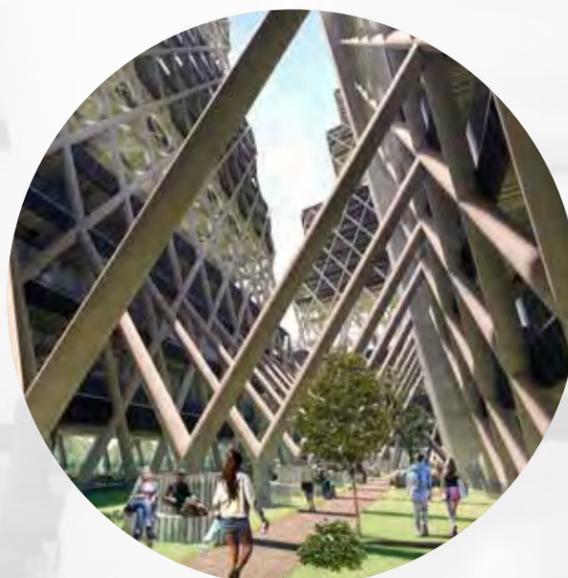


A WASTE INNOVATION CENTRE

by **Louise Remmelts**



Many people do not see waste as a necessity, not being able to see that it has become an unavoidable part of our daily lives. The design of a waste facility in a high-density work-live area can create more awareness about waste management and material recycling. Additionally it can serve as a public space, increasing the social value of such a place. To realise such a facility and reach sustainable goals, collaboration on every possible scale in every possible system is necessary. The goal in this project is to show that waste-awareness could be created in a positive way, through the design of a waste innovation centre.



ZERO-WASTE TIMBER HIGH-RISE

by **Robert van Houten**



This design proposes a solution in the form of a zero-waste high-rise design. It uses only recyclable or renewable materials. Mass-timber is chosen as the main material as it is not only renewable and easily reusable, it is also a storage of CO2. The design reuses the foundation of existing buildings, and with the lightweight properties of mass-timber, increases the density on the location by building taller. By transferring the structure to the facade, the internal flexibility is enhanced. The building can be easily refitted during its life cycle or to be completely disassembled at the end of life.

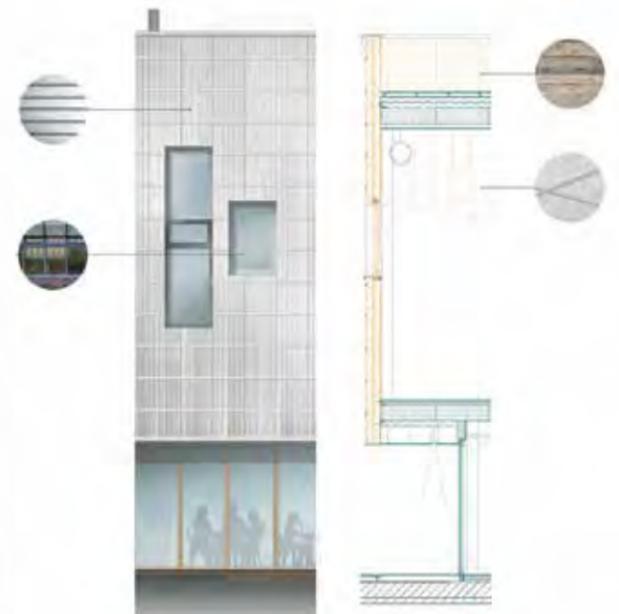
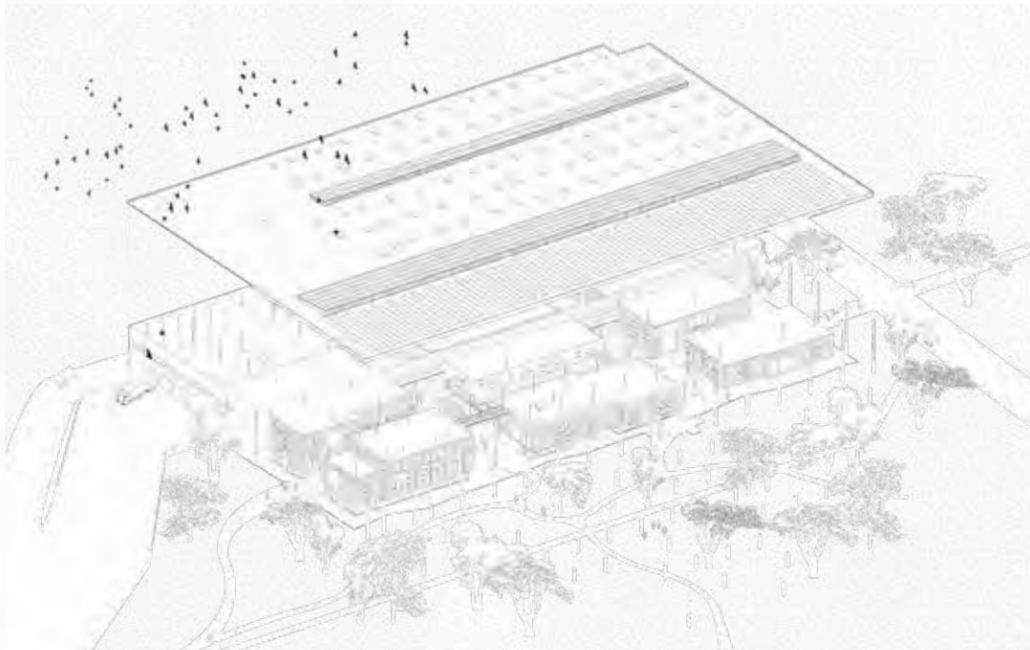


THE HARVEST HUB

by **Maike Dronkers**



This project envisions the transformation of the existing IKEA building into a “harvest hub”. On the one hand, the Harvest Hub facilitates the logistic process of Urban Mining for the area of Amstel III, reducing building waste and CO2 emission due to transport and fabrication. On the other, it provides a place for the community in a transitioning neighbourhood where people can come together and learn about the heritage of their neighbourhood and the potential for a sustainable environment. The locals can take part in the transition to a circular built environment.



Context | Million Homes

The social task and innovative housing

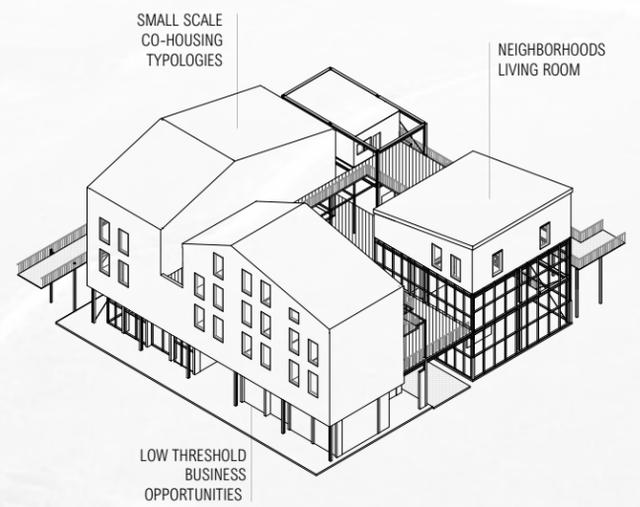


OPEN NEIGHBOURHOODS

by **Marleen de Groot**



This project proposes a strategy for the creation of inclusive live-work environments within existing industrial areas, which enable a better integration of urban newcomers. The Open Building philosophy of Habraken has been researched in relation to the home-making process and the development of a local building industry. An open neighbourhood has been designed, which is able to adapt to changing user needs. Its purpose is to act as a support system, creating low threshold opportunities for the community to meet each other and to get involved within the realization of their own dwellings, businesses and recreation activities.



MOVING MARINETERREIN

by **Florian Reisacher**



The aim is to develop a system that makes use of embedded kinetic architecture that spaces can adapt to the ephemeral spatial needs of different users, user groups or functions in order to lower the price and footprint of a unit via reducing its size during times of reduced need. The aim is to combine different functions that can be complemented as their activity patterns usually do not overlap, following the idea that a reduction of living space affects the user least while not there and hence would reduce the reciprocal impairment of these variable spaces.

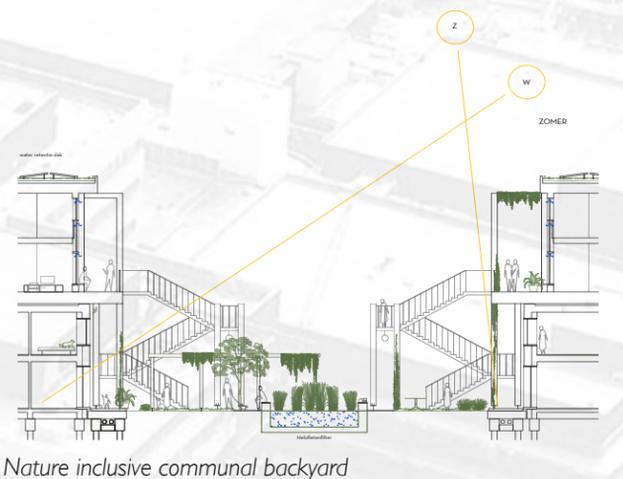


SOCIAL SUSTAINABILITY

by **Roxanne Kiel**



Architecture is a social act, constructed to serve the needs of the people, but beyond that, it contributes to the ecosystem we live in. The aim of this project was to design a socially sustainable transition for an outdated worker neighbourhood in Leiden based on social and environmentally friendly design principles. A series of interviews with community members have been held, which formed input for the social design strategy. Finally a climate adaptive and nature inclusive neighbourhood has been designed, while integrating clear transition and social spaces in the streets and the communal garden(s).



Interviews with various community members

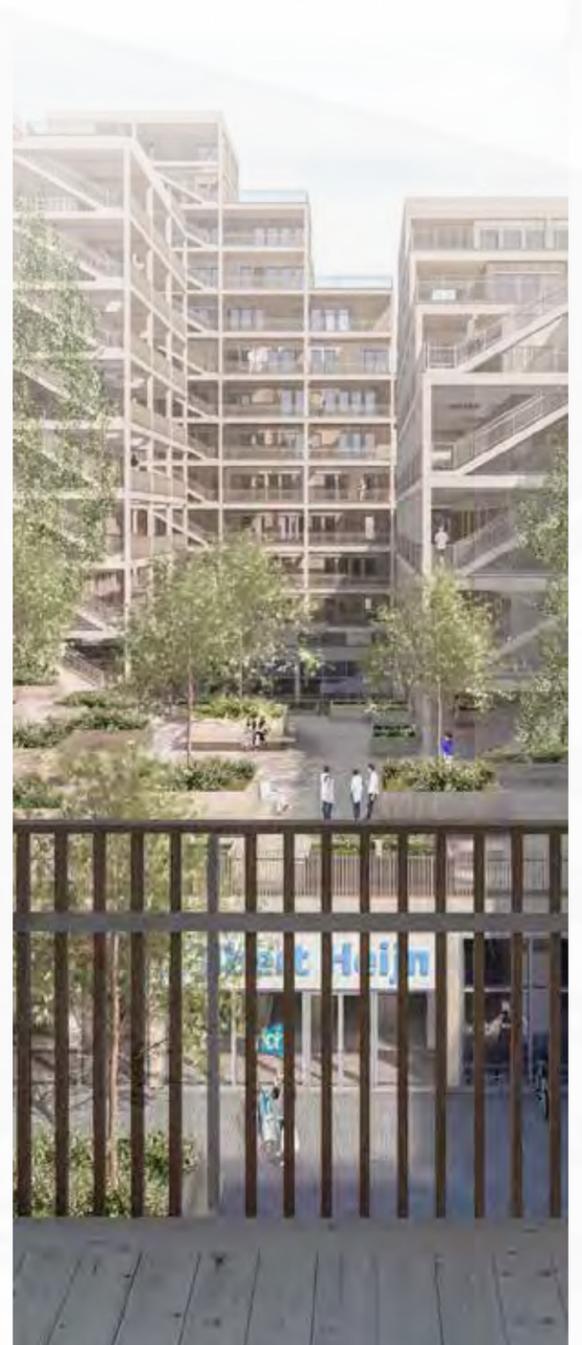
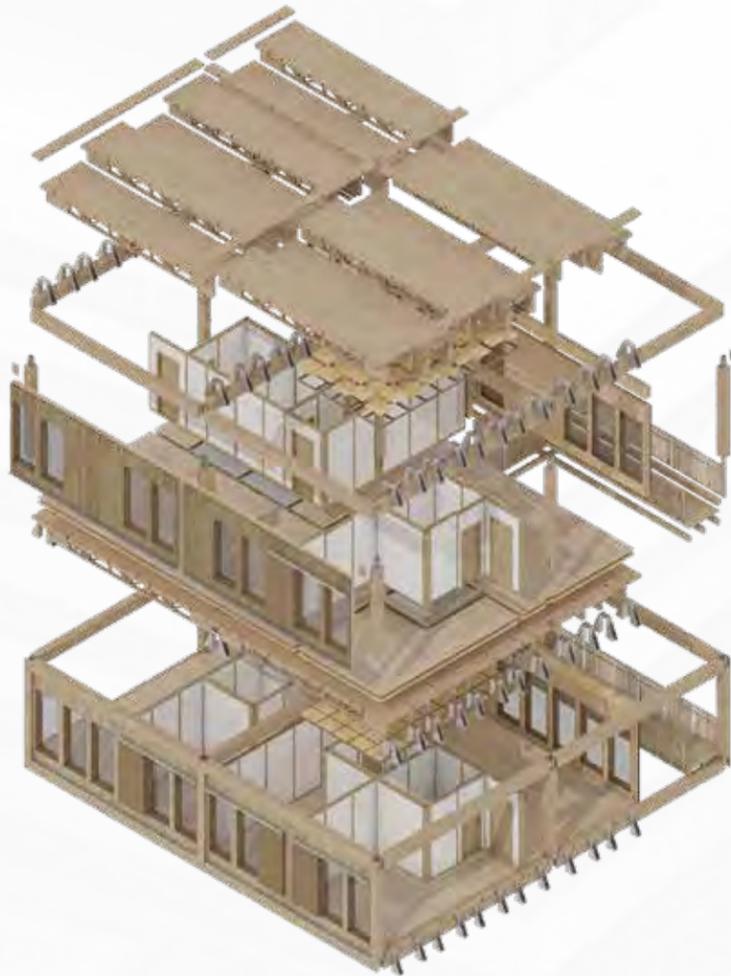


DESIGN FOR CHANGE

by **Leonardo Enzo Pozzi**



The project aims at addressing the increasing need of housing for individuals in the Netherlands with a circular building system designed to adapt to the everchanging needs of the society avoiding wastefulness of resources while fostering their reuse. The building is made of many different clusters of 4 to 10 people (co-living) sharing common facilities and open spaces. These units are assembled and interlocked together producing rich visual and spatial connections that invite inhabitants to make fuller use of exterior shared spaces creating a cohesive village composed by different small communities.



Context Caribbean, Sint Maarten

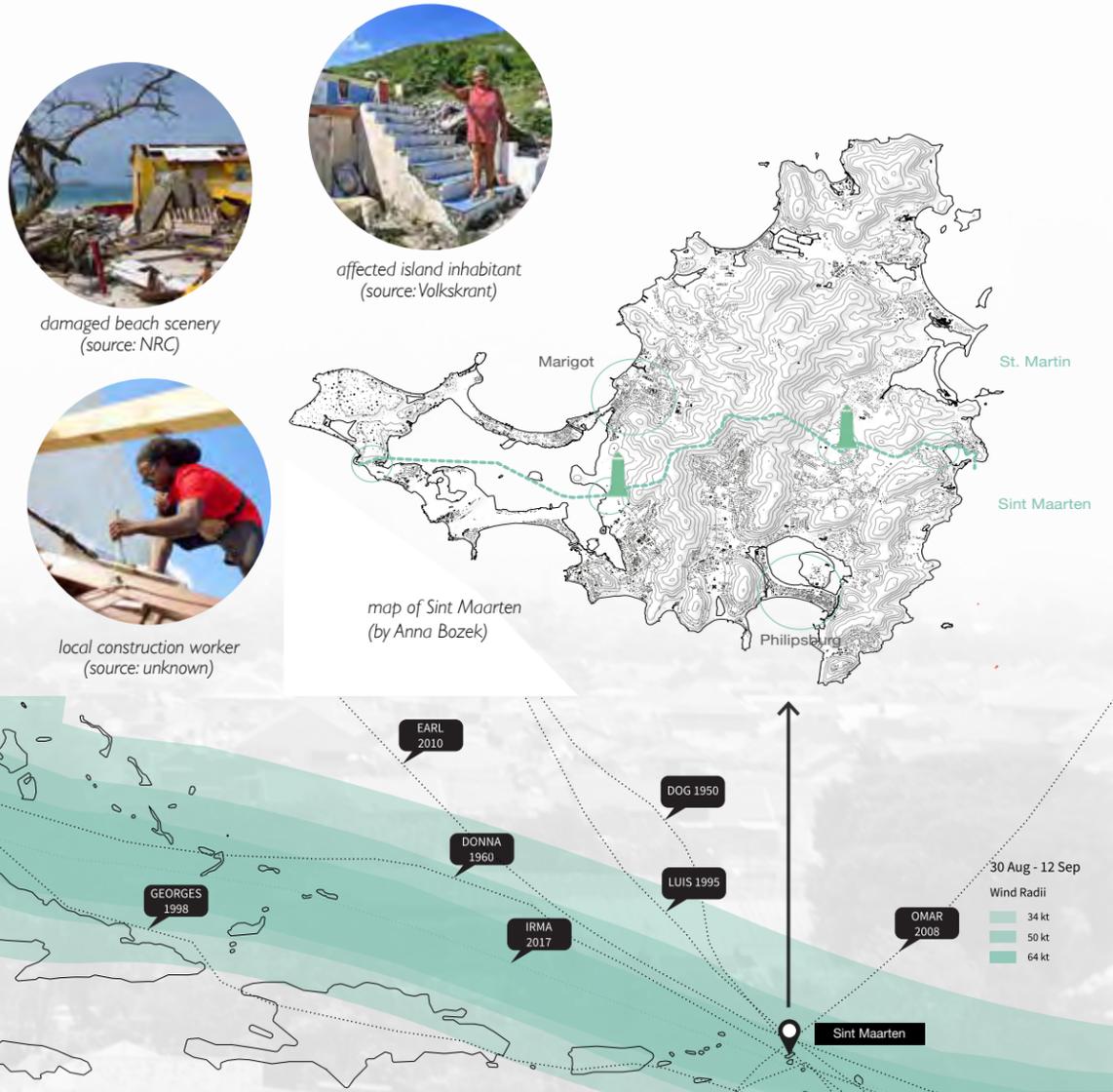
A healthy building culture for a resilient island community

text **Mo Smit**

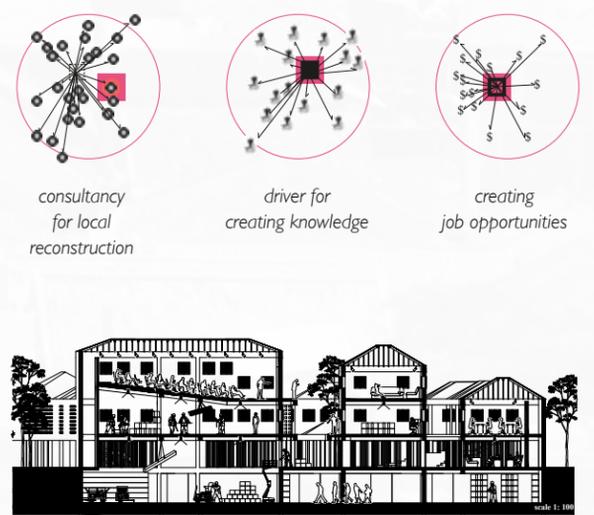
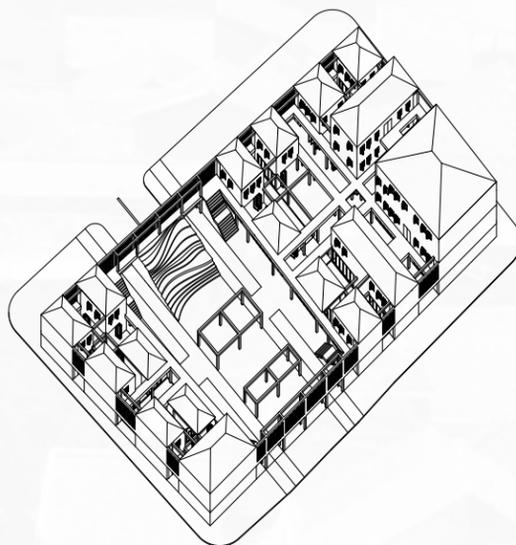
In September 2017 the Caribbean island state of Sint Maarten got hit by a category 5+ hurricane called Irma. More than 90% of the built environment got damaged and many people lost their homes and other belongings. A situation which worsened even more under influence of heavy rainfall and another hurricane the same month.

Students of aE Intecture focused on the circular reconstruction of Sint Maarten, an independent country within the Kingdom of the Netherlands. A community-based approach is followed to (re-)develop affordable housing, public functions, and utility networks, taking the challenge of building in a hurricane prone area into account. Technical topics that are being investigated are for example: how to build with (hurricane related) waste materials, how to develop a healthy building culture using locally producible renewable materials, and how to enhance community resilience towards hurricanes?

Students visited the island in April 2019 for thematic field research and analyzed various reconstruction projects from NGO's (Red Cross a.o.) and private parties. They assembled their collective research in a book, called (Re)SXM, wherein (re) stands for resilient reconstruction.



Hurricanes in the Caribbean (map by Bram Rooijackers)



BUILDING LEARNING CENTRE

by **Anna Bozek**



The long-term goal of this project - a building learning centre - is to improve the built environment of Sint Maarten through education around hurricane-proof building knowledge and other climate resilient building methods. Capacity training of skilled construction workers will eventually contribute to minimising damages with every hurricane to come.



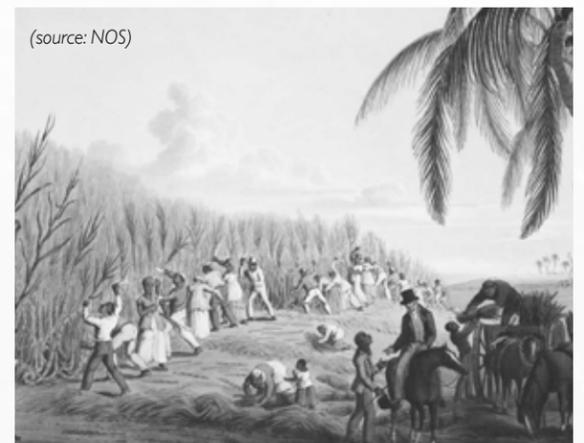
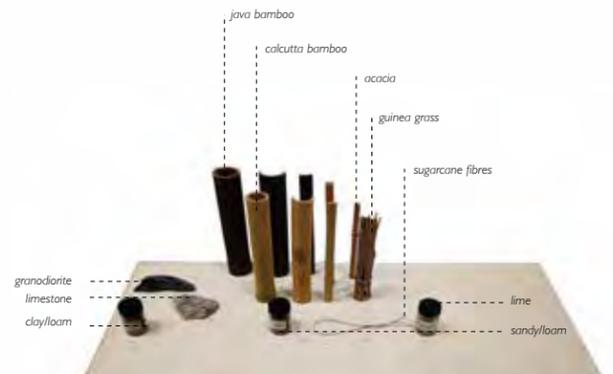
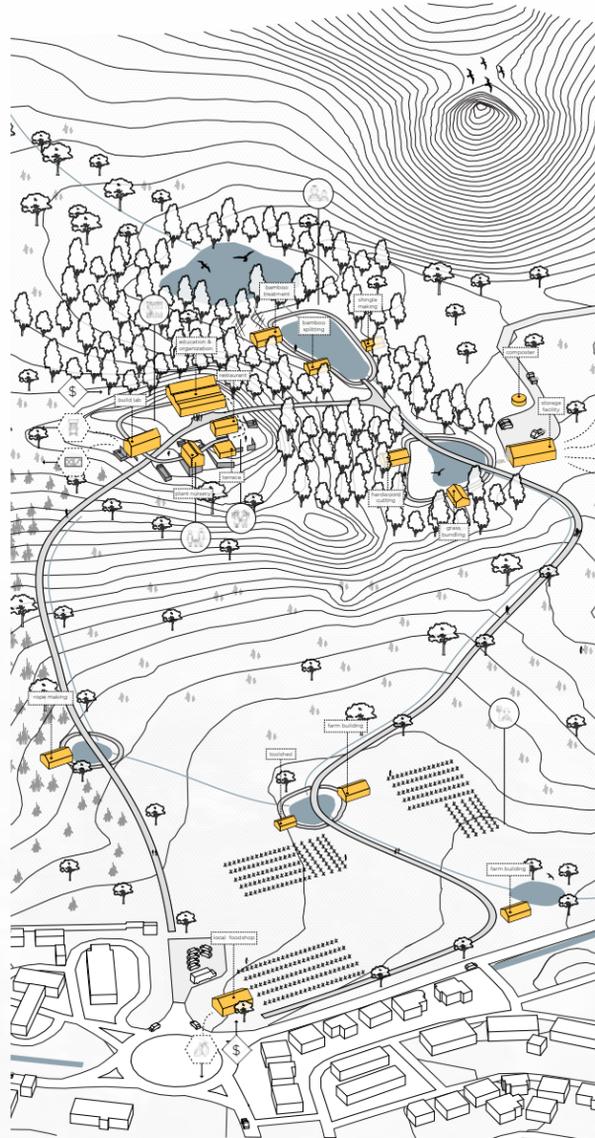


BETHLEHEM MATERIAL PARK

by **Remi Groenendijk**



The lower social classes of Sint Maarten experience trouble with their building culture, especially in combination with the recurring hurricanes. Both building expertise and materials are scarce on the island. As an holistic project, Bethlehem revitalises an abandoned sugarcane plantation into an ecosystem providing socio-economic diversification, building education and natural building materials to the surrounding neighbourhoods.



RECONSTRUCTING INDEPENDENCE

by **Martijn Dalinghaus**



The proposed intervention is an affordable, hurricane resilient building system which transforms Sint Maarten's linear economy into a resilient circular economy. By using local waste materials, and producing new building products from it, the economy is improved in synergy with the urban metabolism of the island.



WATER OF THE NEIGHBOURHOOD

by **Hongie Huang**



A design has been made for a community-owned decentral water management facility on the scale of a typical Sint Maarten neighbourhood. The proposed infrastructure enables to close the water supply and sanitation chain, while providing high quality public spaces with room for entrepreneurship at the same time.



REGENERATIVE TOURISM

by **Gina Vermeeren**



The development of mass tourism has caused the destruction of habitats and led to a decrease of biodiversity. This project proposes to use the transformation of modern ruins for the enhancement of the relationship between human activity and the ecology. At some places existing structures support the ecosystem, at other places they facilitate human activities.



Kick-off meeting aE Studio nr. 24, February 2020

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Building Product Innovation
Climate Design & Sustainability
Design Informatics
Design of Construction
Environmental Technology & Design
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COLOPHON

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