



journal

Architectural Engineering journal

Temporary bamboo stadium | design strategy for Brettenzone

a design by Chen Shen

page 5 aE studio section



in this journal

Extra



aE studio section

aE studio enclosure

MaCuB



YOUR MIND!

Mass Customized Building-Systems

aE research page 8

I N T E C T U R E

Architectural Engineering brings spatial, functional, social design and technical possibilities and developments together. Subjects like product design, material research, building physics, structural mechanics, computation and model and production techniques all play a major part in architecture. In fact architecture and engineering are irreversibly connected with each other. Research in the field of technology leads to all kinds of improvements in architecture. This also works the other way around, for instance improvements in architecture help inspire research and innovation. If you choose

for Architectural Engineering, you'll choose for architecture as a complete design discipline in which technical possibilities are an inspiration and an important contribution to the architectural design.

This annual journal gives the faculty insight in our master programme and it shows recent work made by students of the architectural Engineering studio.

We hope you all like the work of INTECTURE, integration of technology in architecture!

DNA

DE NIEUWE ARCHITECT

aE research page 8



B u c k y L a b

aE MSc 1 page 5

third edition

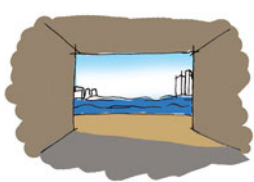
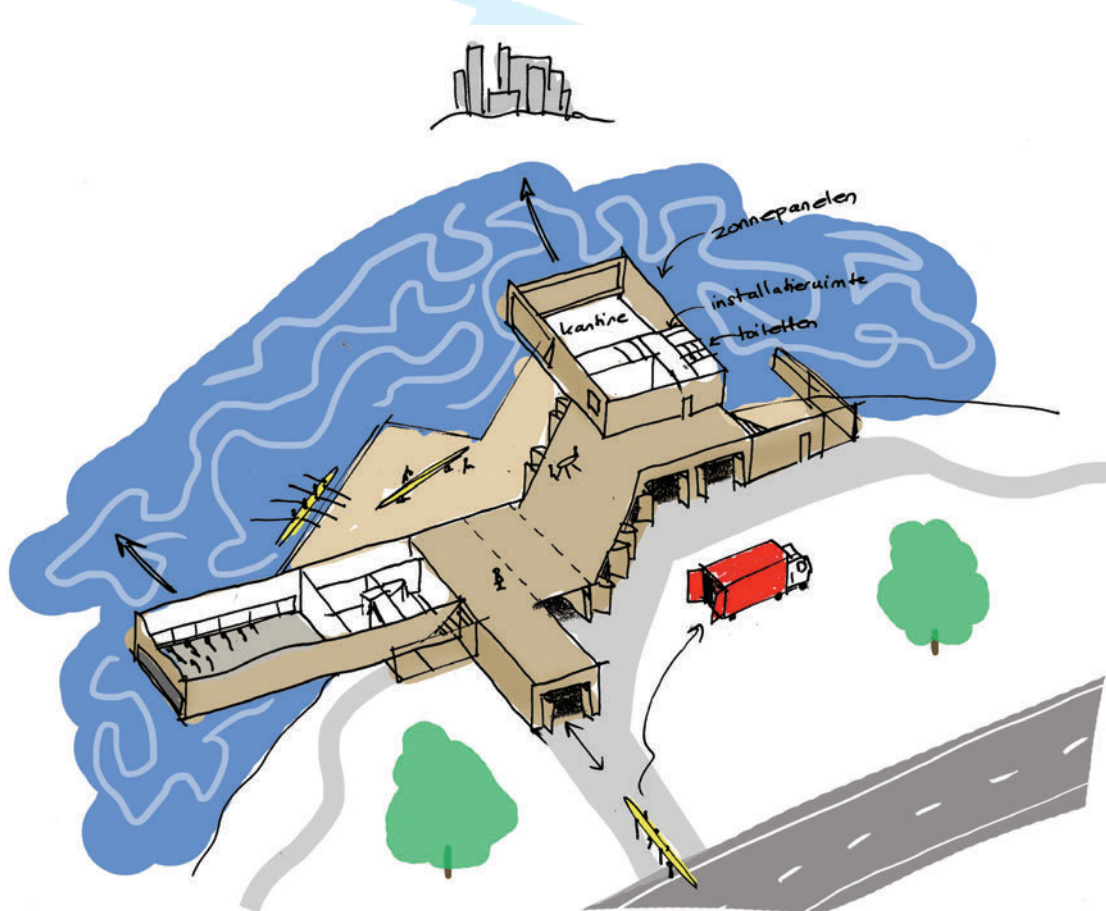
aE Day 2015

19 March 2015 – don't miss it!

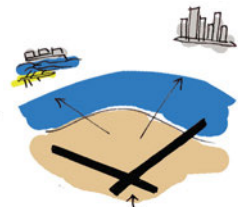
BSc2

Design & Engineering

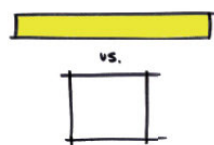
Design proposal of **Lena van der Wal** winner of the (shared) first prize (Spring 2014)



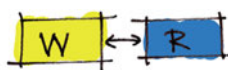
focus on the water and on the sport



form arises from the best sight lines



elongated instead of square



competition and recreational sport separated

Design proposal of **Job van den Berg** winner of the (shared) first prize (Spring 2014)



Introduction

For project ON2 first year students design a rowing clubhouse at the location of an existing slot of 'de Omval'. As a final project of the first year, it focuses both on sustainability with the ultimate goal to design a passive climate and engineer a functioning construction, materialization and a comfortable climate of the spaces needed for the function of a clubhouse.

'De Omval' is located along the Amstel River, at a very inspiring location. Across the water there is Berlage's plan-Zuid, along the water you have the Amstel quarter with its offices and behind the location there is a new development and the Bijlmer Neighborhood. All there is for the students to work with is a concrete foundation of 700 m², which solves all foundation issues.

During the project students get to work with experts on climate design, construction engineers and building construction engineers. These teachers indicate the special technical issues, which gives the student the task to make choices reckoning with these issues and incorporate them into their design. Everything has to be presented in both 2D drawings and 3D models; students show their solutions for critical details in 1:20 models, using the proper materials.

Focus on Sustainability

In the near future there is a growing demand for sustainable buildings. A first step is to be able to design a passive building, which means a building responding to factors like the heat of the sun, rain and cold weather. By the organization of spaces in the design, solar chimneys and water collectors, these physical aspects can be turned into something useful for the building and the comfort of its spaces. This can reduce the use of energy for ventilation, the use of drinking water and use of energy for heating or cooling.

This project resulted in many inspiring interpretations, there were design focusing on the shape of the building, like the form of a boat. Many designs were trying to make a design going beyond the expression of just a box. Others made the choice to focus on the construction with very bold wooden shapes or on climate design with large chimneys to collect sun and extract heat. Five students were awarded for their designs; the third price went to Eva ten Velde and Jip Pijs, the second price to Wilfried Damen and the first price went to Lena van der Wal and Job van den Berg.

more info

Coördinator	Nellie Schut
Team	Thijs Asselbergs Rob Nijse Andy van den Dobbelsteen Roberto Cavallo
Student assistant	Wouter Langeveld

Archineering

BSc5

Materialisation and the design process are the two main themes in the minor Archineering.

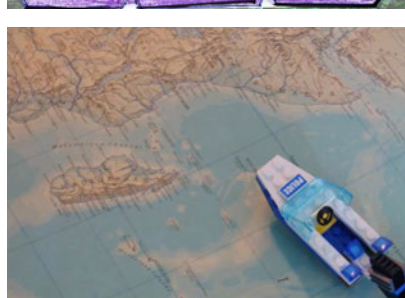
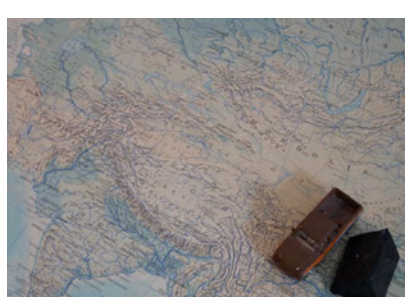
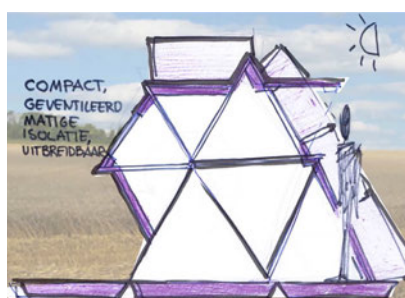
Architecture and materialisation are inextricably intertwined. The idea or concept can be enriched and made more profound with the material development. Designing the climate, detail and structure can lead to new insights and unexpected perspectives on a design. In Archineering 1 structure, climate and detail will be emphasised in three short design exercises. In Archineering 2 all aspects will be covered in one longer exercise. In this design the fascination of the student for a material, a climate aspect, sustainability or another topic will be leading.

Just like an athlete can train to become a master, a designer can train the design process as well. By training designing in short exercises and explicitly studying the design process, more insight in the design process will be acquired. In short, designing is exploring and discovering the unknown by means of a guiding theme within a frame of reference and with a design language: sketching and models.

The minor, which starts every fall semester, consists of two quarters, each concluded with one grade. Designing, plan analysis and reflection on the design process are the subjects of assessment. Next to tutoring in the design studio, several seminars are held.

Archineering 1 (first quarter, 15 ects) can be followed separately, Archineering 2 (second quarter, 15 ects) only when combined with Archineering 1.

images left: design by **Sebastian van Kint**

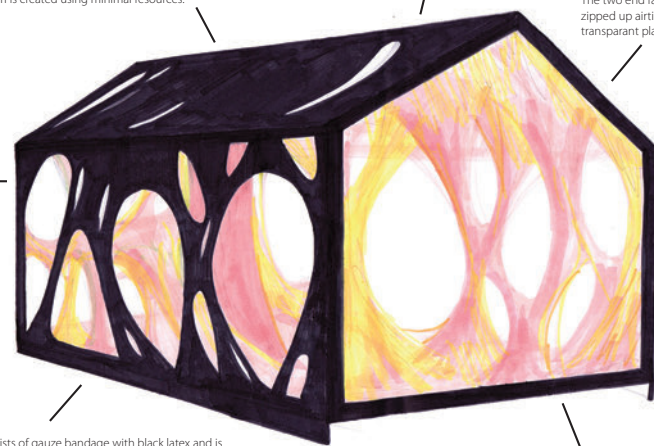


The Foam House is made of SMPU: Shape Remembering Polyurethane. Recycled foam (isolation material, scourers, furniture stuffing...), selected by color, will be thrown in a mould where new foam will be sprayed on to generate the final shape. A solid form is created using minimal resources.

Very easy to mass produce

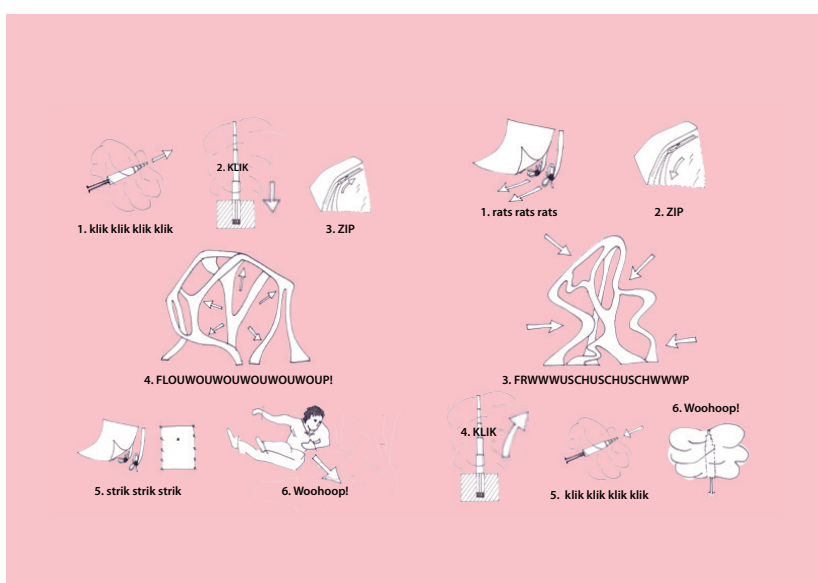
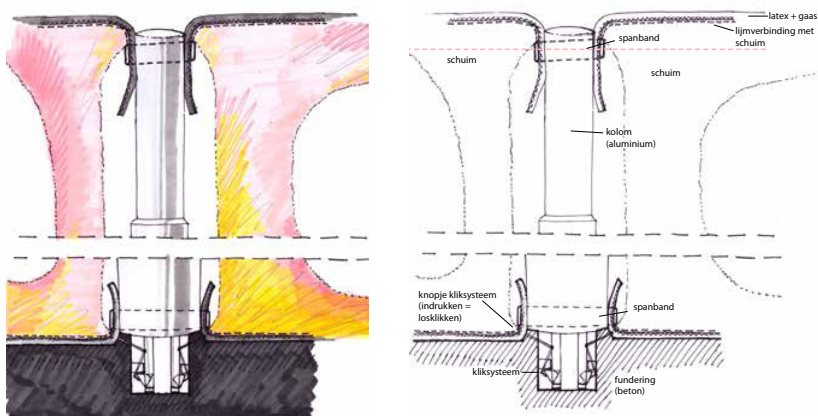
The two end faces can be zipped up airtightly with transparent plastic

Telescopic column in the middle is the base for stability



The facade consists of gauze bandage with black latex and is both flexible and completely waterproof. At both sides it will be tied to the foundation, the gauze can handle tensile forces and is thereby holding the house at its place.

The interior is open, soft and fluffy. Couches and beds are formed by the foam.



more info

Coördinator	Roel van de Pas
Consultants	Eric van der Ham Jan Arends
Lecturers	Elise van Dooren Thijs Asselbergs Andrew Borgart Eric van der Ham Tjalling Homans
Guest tutors	

MSc 1 Delft Seminars on Building Technology

Imagine you have a beautiful façade in mind you want to make. Or you are fascinated by materials. Or you are convinced that we should build at least energy neutral, or even better buildings that produce energy. But now you have to design it.

You have to have the knowledge and the skill to make your idea concrete. In the way you want it to be. In fact, better than that; better than the first –often en vague – idea and not only the idea, but a concrete, buildable design. When you imagine these things, probably you are more or less convinced you don't have the knowledge or skill, or you see all technical stuff as really difficult. Or you are thinking that the technical aspects are for specialized people, not for architects or designers. Or maybe you can't wait to start with developing your idea and making it concrete. This is what the course 'Delft seminars on building technology' is about.

Themes

In this course, developing a position or guiding theme is a personal 'journey' more in general towards architecture and technical building design and more specific towards the given design task at hand. It is your personal interpretation in relation to the design task "2030 proof". Being inspired by innovative techniques or fascinated by playing with materials, having a mission to make a 'sustainable' building, discovering an aspect to improve in the existing building (as a kind of 'research question'),... all these kind of things may be part of your personal position. In fact, with the choice for a theme at the start of the course in the 'special groups' (1) earth, wind and fire, (2) wood, (3) lightness or (4) low tech you have started your position or guiding theme. In the other groups you are free to define your position by yourself.

Earth, Wind and Fire

The Earth, Wind & Fire concept (*natural airco-system by Ben Bronsema*) - an example of one of the themes within the course - combines climate design to an architectural challenge. In this holistic design approach, the usual distance between architect and climate engineer is reduced, so the energy efficiency of buildings can be increased. The use of building services is kept to a minimum; energy consumption is drastically reduced and is generated by the building itself. The architecture, building mass, constructions and climate facilities all work together, in such a way that a building is transformed into a Climate Machine, activated by the natural resources of sun, wind, geothermal energy and gravity.

The "Earth, Wind & Fire" project within the MSc 1 Delft Seminars on Building Technology consists of redesigning an existing building to such a climate machine by using climate amenities as elements for architectural expression. Through research on literature and precedents, performing simple calculations using computer software and making models and drawings, the student focuses on the architectural and technical possibilities of the Ventec-roof, the Solar Chimney and Climate Cascade.

more info

Coördinator	Bas Gremmen
Team	Thijs Asselbergs Elise van Dooren Marcel Bilow
Guest tutors	

2030 Challenge

As we approach the year 2030, the challenge to build net zero energy buildings becomes more technically challenging and complex, as well as more achievable. The amount of available wind and solar energy has always been abundant; the technology to harness renewable energy systems advances daily.

The 2030 Challenge proposes targets for the energy consumption of not only new buildings, but also the existing already built environment, reducing fossil fuel consumption. By 2030 the goal is that new and renovated buildings will be net zero energy, or require no fossil fuels, and emit no greenhouse gases.

Objectives

Energy efficiency

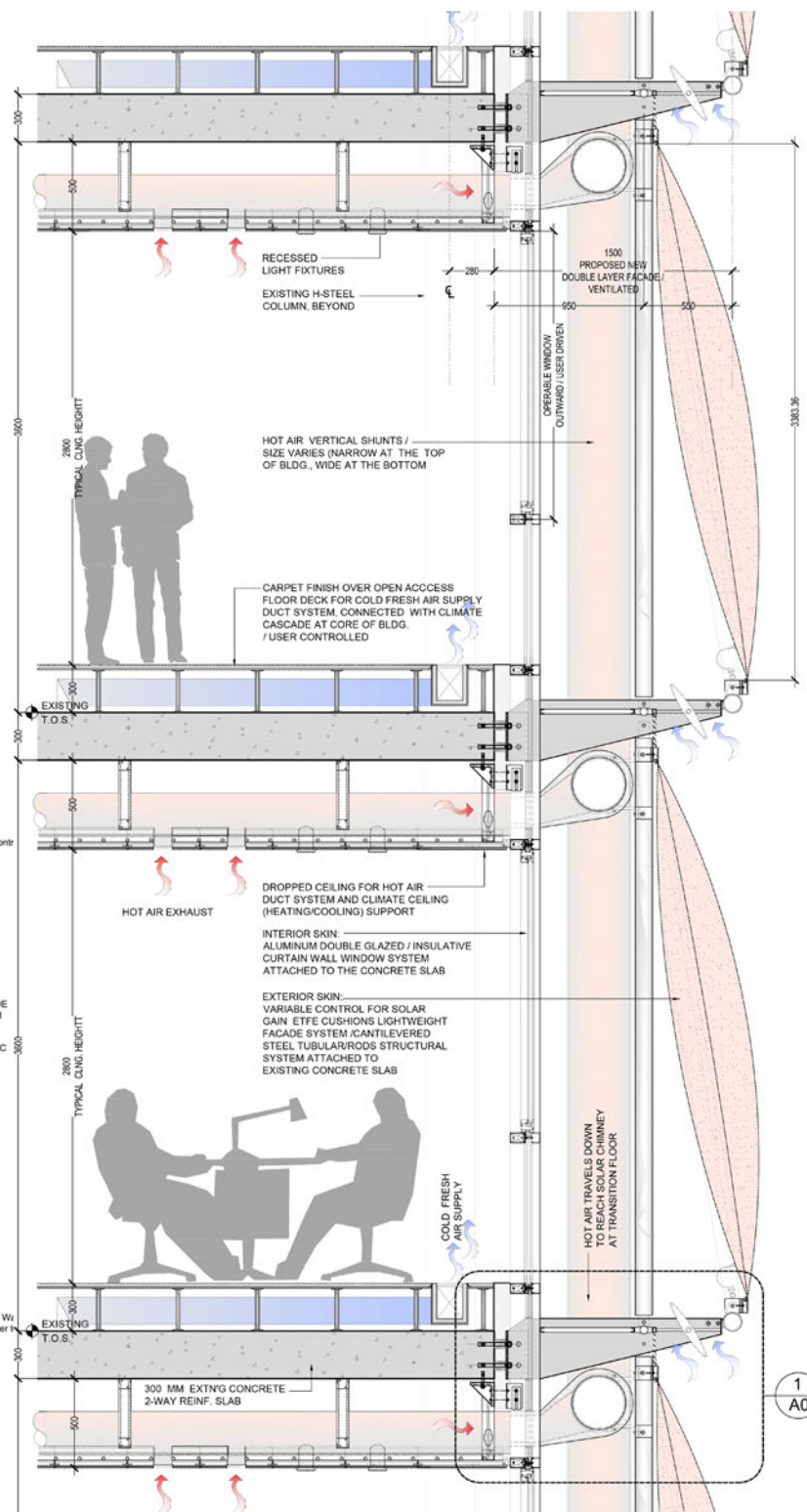
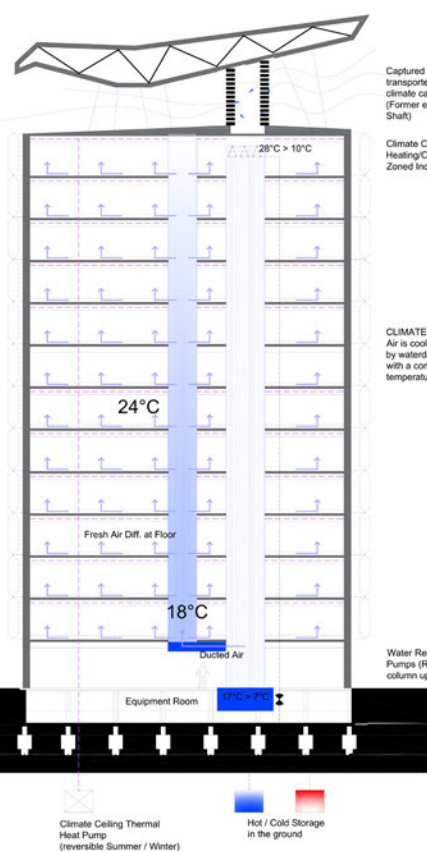
By reducing building energy use throughout the combination and integration of multiple energy saving measures.

Urban Revitalization

By integrating the Stadhuisplein Complex (Tower, Town-Hall & Plaza with the Site) by maximizing connectivity and use of energy synergistically.

User Comfort

By providing direct/indirect contact with the environment. By increasing building floor plan flexibility in a flexible work environment. And, by increasing user controllability of Building interior micro-climate.





Bucky Lab

MSc1

We started the new Bucky Lab Msc1 course a couple of years ago in its new set up. Marcel Bilow, assistant professor and formally known as Dr. Bucky Lab developed the idea of a mobile workshop to solve the problems that occurred after the demolition of the old building by putting a set of tools in boxes and open the workshop in a tent on the campus.

The idea was well accepted and the ongoing trend having more than 70 students in the course is quite a fact that the Bucky Lab is more prominent and liked from a wide group of students.

Its is no wonder that our Dr. Bucky Lab also got this years title as "docent of the year" which not only underlines his passion to teach how to develop and build innovative prototypes but also brings the whole course on the top of the best courses within our faculty. According to Stylos who asked for the best docent this year, its seems that the whole course and alumnis of the course voted for Marcel and indirectly also for the course itself.

Next to the internal success, the Bucky Lab students also won again 3 prizes in the beginning of the year during the façade fair gevel in Rotterdam. The last semesters projects that were made in cooperation with the NSVV about daylight will be exhibited in Den Haag during the LICHT2014 event and a few models will be also shown in Vienna / Austria.

This coming winter semester the Bucky Lab will have a mix of projects, up to now we have Jerzy Latka our polish phd in the team to assist the topics of cardboard constructions, we will pimp a van to be transformed into the 3TU Lightvan a mobile light lab.

If you would like to know more about the course have a look on www.buckylab.blogspot.com or join the Bucky Lab group on facebook.

more info

Coördinator Marcel Bilow (aka Dr. Bucky Lab)
Guest tutor

10 THINGS YOU NEED...

- safety glasses**
in the summer tinted glasses will be the best
- pencils**
a fine and a big one, waterproof helps also
- measuring tools**
a 3m tape rule and a folding rule does the job
- watch**
we will start on time, so have one and look at it, better three hours too soon, than one minute too late. Don't wear your rolex!
- safety shoes**
a must in the workshop with steel cap and steel sole, without you are not allowed to enter the workshop. Get a comfortable one, you will need them later to enter any building site in your job !
- thick work gloves**
for the hard work these are best and follow also the safety codes for a workshop
- thin work gloves**
if you like to work with gloves for fine assembling jobs, if not your bare hands will do it also
- ear protection**
some ear plugs or a more comfortable ear muff will give you the silence
- bucky lab shirt**
not a must but show your passion and become part of the team ...
- working pants**
an old pair of jeans will do the job, but will reduce your agility and comfort and where do you put your pencils and measuring tools...?



what you really need ● what you want ●

...SAFETY FIRST !

Dr. Bucky Lab recommends to get proper stuff, you have to buy the cheap ones twice and good tools and protection makes the job easier and more comfortable ! And if you don't like it, you won't use it.



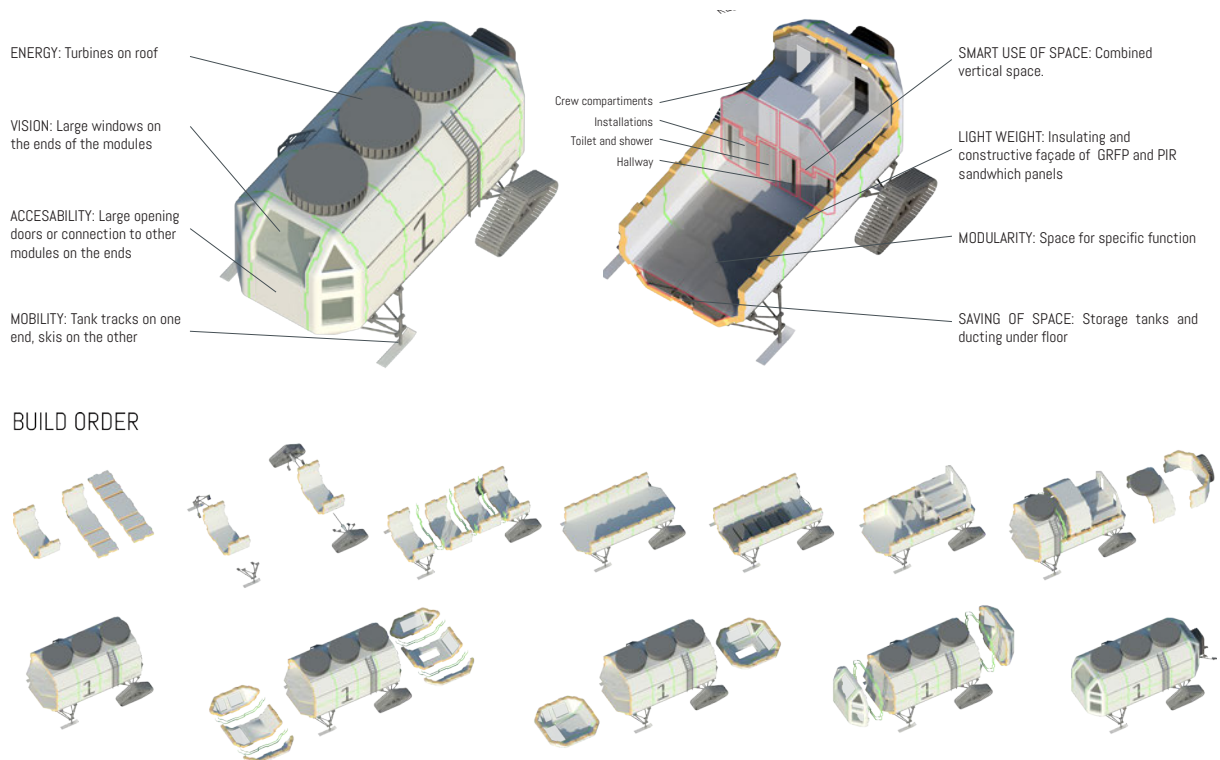
MSc2

EXTREME

EXTREME is the Msc2 project about **integrated design**. The project deals with the integration of climate, load-bearing structure and facades with the architecture and organization of the design. The project deals with scales from 1:200 up to 1:5.

The main idea of the course is to learn the students to deal with problems by thorough analysis rather than by using dogmatic solutions. The project is situated in an extreme environment which helps to quickly understand what the real problems are. In the Netherlands for example you would use a 30 or 60 minute fire resistant wall to make fire compartments in buildings so the building can safely be evacuated. On Antarctica though - where the project location of last year was - the fire department takes 3 months to arrive. Therefore students need to think in strategies to deal with such problems.

Other typical problems are of course the cold climate, little sunlight, lack of space to do sports, but also the shortage of fresh food, the small cargo bay and limited weight capacity of the airplanes which will be used to get the building to Antarctica.



part of the design proposal of **Nick de Lange**

more info

Coördination and content Job Schroën
Ulrich Knaack



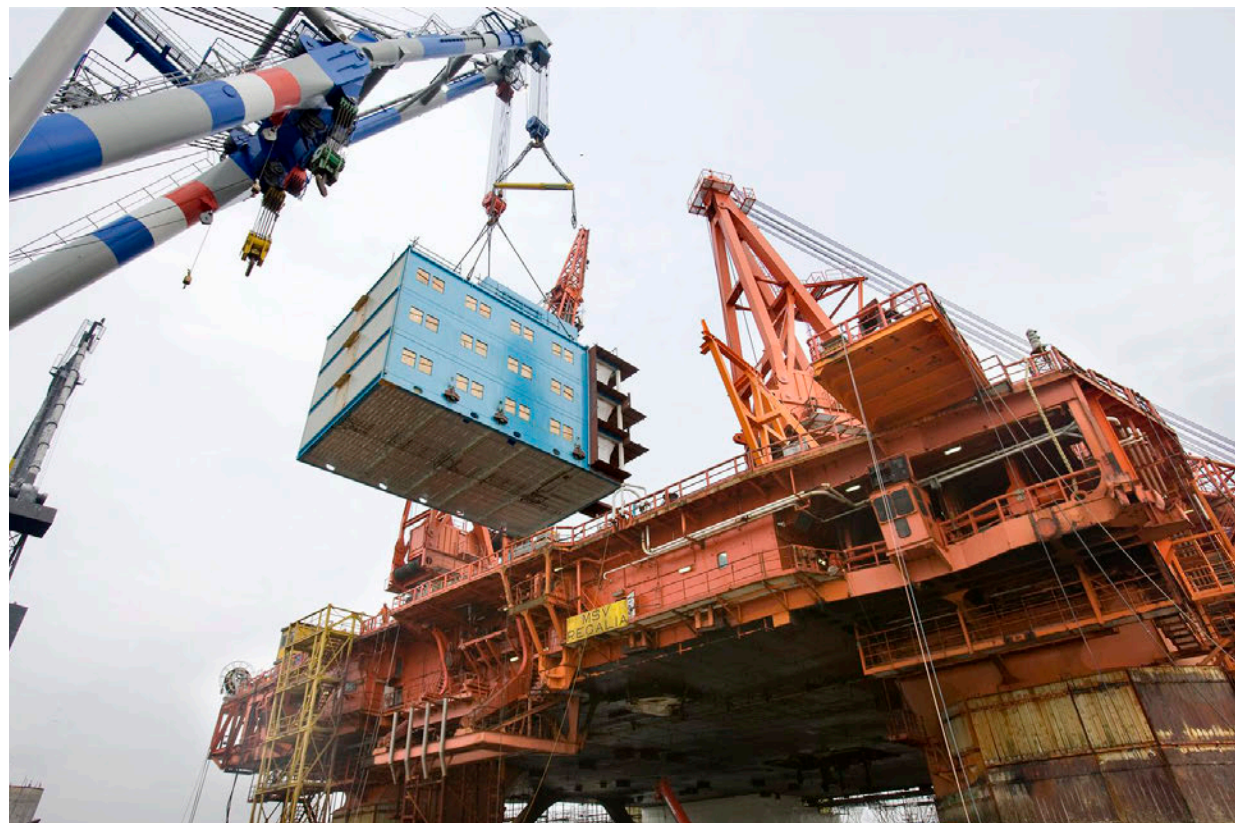
part of the design proposal of **Guus Gooskens**

Assignment Spring Semester 2015

The project this Spring Semester (2015) will deal with an offshore platform which is used to house 300 people when building eg oil rigs and windmill farms. The platform is floating and can be used in the North Sea and Gulf of Mexico. The assignment is a realistic one, which the TU Delft is doing in collaboration with Keppel Verolme, a contractor of offshore platforms. There seems to be quite some room for improvement on energy usage in current offshore designs.

During the project people from Keppel Verolme, Shell, the faculties of Civil Engineering and the faculty of Maritime & Transport Technology will be lecturing and/or giving consults to the students.

We will be visiting the yard of Keppel Verolme to get a feel for the building methods used at the yard.





studio

Master 3 & Master 4

Graduation Studio

Architects are facing new challenges: there's a vast amount of office vacancy; a large percentage of the existing housing stock is not measuring up to our comfort needs; and in addition to that our new buildings have to deal with changing requirements. Changing requirements that are often motivated by a lack of space. Therefore we need to find solutions for building at unconventional places: next to highways, along riversides, at the coast. Moreover, we need to find answers for integrating aspects in our built environment as: mobility, energy and food production, water treatment, etcetera.

How can we optimize our living environment whilst dealing with those challenges?

In our graduation studio 'Intecture' we seek for innovative and inspiring architectural solutions.

Every student in Intecture Studio has great responsibility in formulating his/her own graduation project, which is roughly defined by program/use, context and a specific thematic focus. This specific focus in the graduation project is enriched by the knowledge and support of a specific research tutor.

Furthermore, the student is guided through the graduation year by a main tutor (architecture) and a generalistic building technology teacher. To help you formulating your graduation project we defined three main AE Topics: Flow, Stock & Make; and 6 different contexts. You will read all about it

in the following pages.

This modus operandi of the studio leads to a growing amount of inspiring and innovative architectural solutions for the future. Our aim is to share this knowledge as much as we can; within the studio, but also outside the faculty. The collaboration with Rijkswaterstaat (see page 10 of the *aE Journal*) is a good example of this knowledge sharing. Furthermore, we organise the aE Café, which is a get-together of outside parties with students in different stages of their graduation year. Of course our aim is to give you as much perspective on the job market as we can!



aE studio



The architectural engineering assignment

AE-flower shows the different layers in Ae-graduation projects: the why, the how and the what, all combined into a single project. Starting from one of the green leaves, a technical fascination, one can choose out of the BT-workingfields a topic which allures to the desire to explore. This could be the working field of energy; materialisation in relation to the structural; the envelope which is about an

integrated facade design; materialisation in relation to re-use; and digital manufacturing as well as other production technologies. But how to implement these technical themes without a context? Therefore we offer different sites with

different identities, uncertainties and possibilities. The images show these opportunities, and deal with townplanning around highways, A12 at the south of Utrecht in this case; Brettenzone, a recreational strip from Amsterdam to Haarlem with a certain gap at Teleport area which characterizes itself as a concrete monotome and anonymous area; coastal area for experiments, inspiring because of its physical dynamics, nature and form; IBA, the Internationale BauAusstellung, coming from Germany, but currently located at Parkstad, the former mining area in Limburg, a place for innovation in relation to housing; Bandung Indonesia, about the transformation of existing neighborhoods, the kampungs, near or

in relation with textile industries; van Gendhallen Amsterdam, a project co-created with RMIT, about re-use after deindustrialisation. However the design can be as small as a product, the effect can be urban and vice versa. As shown in the pink leaves we work through the scales, from product to urban, new and innovative, or cultural and serving. Aim is to offer a variety of nowadays calls for change within a teasing environment.

Archiprix aE studio

Re-greening Nature

Turning negative externalities into opportunities

a design by David Jacome Polit

tutors || anne snijders | maarten meijs | siebe broersma



“The end result is a symbiotic relationship which enables to renew nature, preserve biodiversity and keep heterogeneity in the Amazonian rainforest.”



This project is about life. According to Johan Rockström, who leads the Stockholm Resilience Centre, we are pushing the planet to its limits in four different directions, and one of these limits is the ecosystem decline. In the very nature of things, life depends on mineral circulation on a constant cycle, among other factors. Key to sustain a circular metabolism, the proposed Center of Education, Research and Conservation inserts itself successfully in the Amazonian rainforest by looking at these cycles and becoming part of them in its subsystems. Throughout the building, ‘air plants’ and other organisms together with humans form a structure that provides a range of "ecosystem services". The first ones provide food and medicines, and the second ones contribute to life regeneration for a place that was initially degraded. The end result is a symbiotic relationship which enables to renew nature, preserve biodiversity and keep heterogeneity in the Amazonian rainforest.

4FFerland

the possibilities of agriculture without waste

a design by Samuel de Vries

tutors || anne snijders | maarten meijs | arjan van timmeten

Natural ecosystems negate the idea of waste. In nature material ecologies follow cyclical systems where the residues of one process are feedstock for another process. Our urban metabolism however follows a linear system where consumption leads

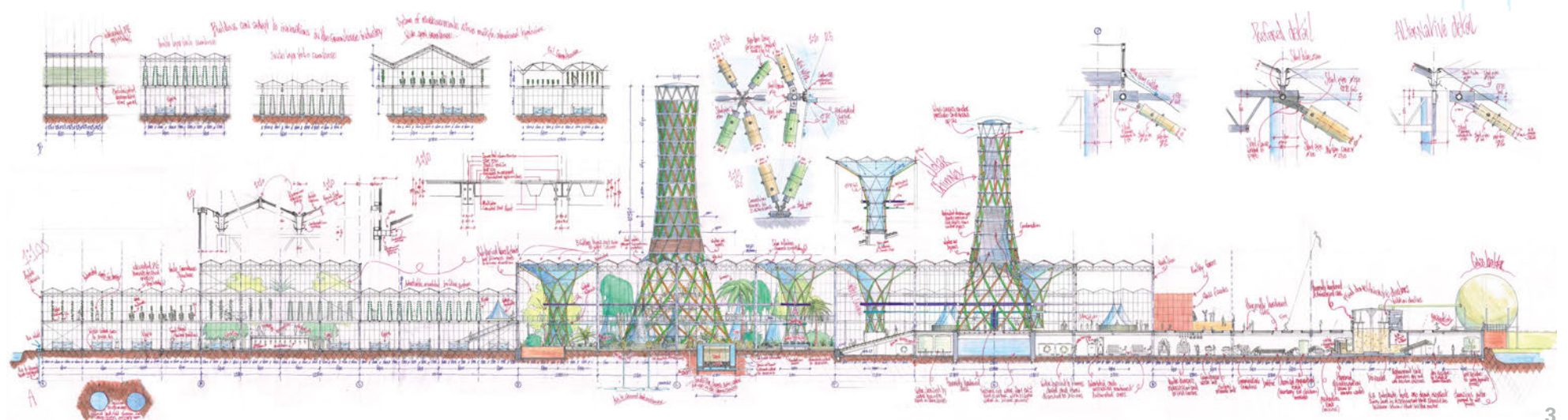
to waste. Because our resources and energy are becoming increasingly scarce we must reevaluate this system. 4FFerland offers an alternative. 4FFerland is an agricultural complex and landscape in Amsterdam. It acts as an organism which lives symbiotic with the city closing its cycles.

4FFerland works like the human body. It breaths and eats from its environment (nutritious residues, water and CO2). Likewise it excretes (organic products), sweats (heat and electricity) and breaths out (air and biogas) into its environment. Similar to the human body 4FFerland’s organs interact and share their nutrients, residues and energy. The body’s organs are represented in

4FFerland by the different types of farmers and producers required by the human diet.

Inside 4FFerland the productive elements are stacked according to their light requirement. 4FFerland is an acronym for Food, Feed Fiber and Fuel farming. In 4FFerland these four essentials are balanced.

4FFerland shows the possibility of agriculture without waste. It offers a framework for sustainable production of food and energy by autarky throughout different scales and networks.





MAKE

Within this semester we started to think about different topics within our Intecture graduation studio. Make will be your topic if you are interested in Production Technologies, the use or even the development of a new material or maybe a well known material in a new application.

While the Maker Movement is known for its tinkering and experimenting to design and build mostly personal gadgets, to hack electronics or to make something in a smaller scale, we would like to expand this new spirit into an architectonic scale.

How do we change the future of our environment, our homes and our cities by using technologies that are broadly available, open source and create a bottom up approach towards a better and more sustainable future.

Make is for all of you who think about starting a business with a small intervention that will have an impact on architectural scale. Do you think about a flat pack building system that can conquer the topic of abandoned office stock, shelters out of recycled material or a new gardening system that changes our walls into green gardens - Make is for you. We love to see prototypes, models and experiments that can change architecture as we know it till now.

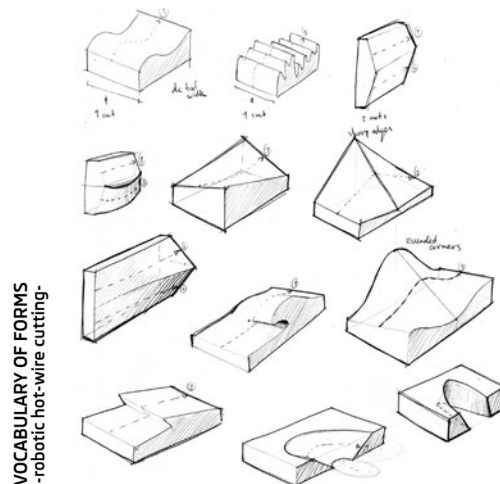
Element | expressing nature and technology

a design by Leon Spikker

tutors || anne snijders | maarten meijs | martijn stellingwerff



Element is a prefabricated concrete retreat for two in the dunes near Wassenaar NL). It expresses the strength of the novel production technique of robotic hot-wire cut EPS formwork: cheap curvilinear building elements. The ruled surfaces to which this technology is limited, combined with the rough appearance of concrete, resonates with the combination of harsh winds, torrential rains and beautiful natural scenery which make up the Dutch coastal landscape. The resulting inhabitable sculpture is lift up to minimize erosion and enhance the already spectacular views.



The house provides a luxurious and romantic atmosphere, away from noisy city life, in which one can relax, read and enjoy the comfort of a fireplace while watching the sun set in the sea.

Technical Research Robotic Hot-wire cut formwork for concrete casting

The technical research was focused on the inherent relationship between shape, process and material which influences each architectural design. The limitations and opportunities of a specific production process (robotic hot-wire cutting) were defined in relation to the subset of possible geometries (ruled surfaces) and a specific material ((UHP-) concrete). These were later to be expressed in a case study; a small house in the dunes.



Music Hall Sloterdijk |

Building the future with FRP composites

a design by Sisko Roosenboom

tutors || tjalling homans | engbert van der zaag | joris smits

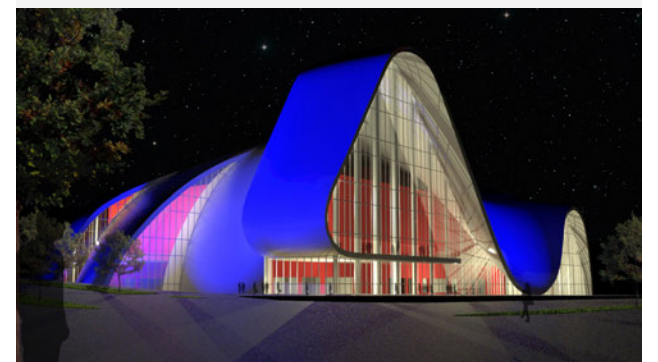
The past few decades, buildings have only been made from a small selection of materials. Mankind's search for new building materials has produced many innovative solutions in all fields of technology. Composites are already being used in civil engineering and aerospace technology as bridge decks and aeroplane parts, but have not yet been fully integrated in architecture. These fields have shown that composites – or more

“How can a building of glass fibre-reinforced polymer composites act as a catalyst to regenerate the wastelands of the Sloterdijk area in Amsterdam?”

specifically, fibre-reinforced polymers – offer a great potential for building applications, because of their favourable material properties compared to traditional building materials. Sandwich elements that consist out of glass-fibre-reinforced polymer and a polyurethane core can be load bearing and used to waterproof and thermally insulate a building as an all-in-one skin. Furthermore, GFRP sandwich elements can be used to create



a lightweight, thin and free-form structure that can accommodate a rapid building process. These properties have been integrated in a Music Hall in Amsterdam Sloterdijk to create liveliness that radiates towards the entire area. Because there is a lot of research still to be done on FRP composites and their applications for building sciences, there is even more potential for the future.

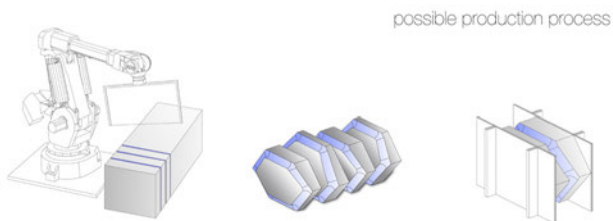


Distinguished dunes

a design by Wessel van Beerendonk

tutors || mo smit | maarten meijs | martijn stellingwerff

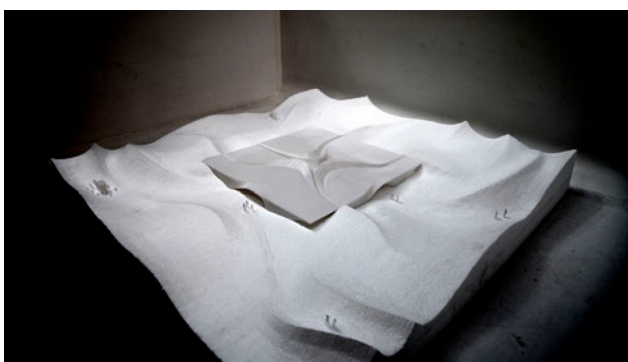
Distinguished Dunes is an ambitious, yet realistic design for a crematorium within the Coepelduynen; a Dutch dune-scape between Katwijk and Noordwijk. It makes the most out of the opportunities offered by its program, the present natural forces and high-end technology. These three parameters led to a very pure and clean building that takes responsibility for its direct environment, spatial quality and function.



The graduation project started with an elaborate research on the possible application of industrial robots within architecture. Especially the application of Robotic Hotwire Cutting was explored in collaboration with the robot-lab in Rotterdam. This technology enables the application of complex geometry within the architectural practice. By adding complex EPS blocks as inlays for standardized moulding technologies a wide range of complex concrete geometries can be produced.



What we see in contemporary building production is that high-end technology led mostly to the application of even thinner sheet-based materials. Subsequently these materials are layered on top of each other to comply all building regulations. Hereby the role of the architect is sidelined, he becomes a stylist who only designs the façade wrapped around the concrete structure of the contractor. A disconnection occurs between the different building elements. By embracing new technology like Robotic Hotwire Cutting we can oppose ourselves against the layering of poisonous sheet-based material and create an architecture of volume. In this sense Distinguished Dunes became a detail-less building, the building as one embodiment where the different tectonic elements as well as the architectural spaces coalesce.

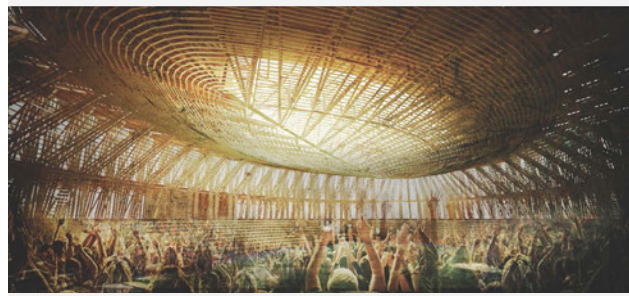


Temporary bamboo stadium | a strategy for Brettenzone

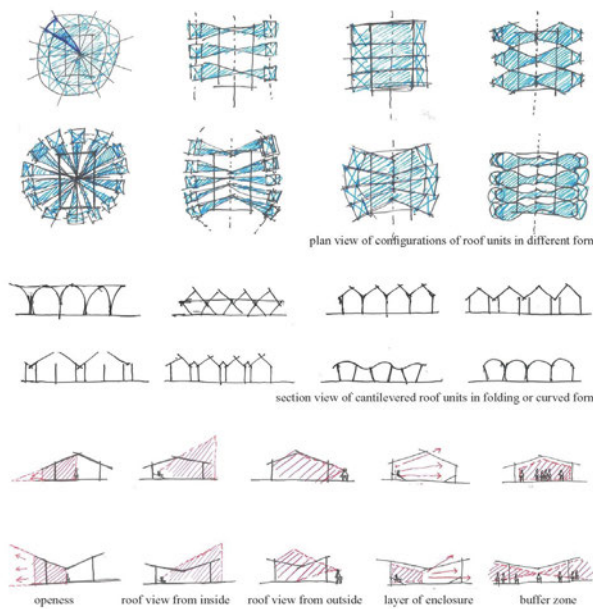
a design by Chen Shen

tutors || anne snijders | maarten meijs | rob nijsse

ARCHIPRIX
nominee



As an ecological and strong building material, bamboo can be the alternative constructional material to wood in long term consideration even in West - Europe, when facing the urgency of sustainable development. In this project, bamboo plays a key role in the levels of spacial quality, use, structure and construction with the aim of building a temporary, multifunctional and disassembled stadium in Brettenzone, Amsterdam.



Main issues of the temporary disassembled bamboo structure are the aspects of the structural typology in relation to spatial quality of the stadium and the disassembled joints. This has resulted into a self-stable structural component within the character of a repetitive rhythm of a bamboo structure. The joints are made in combination with a metal plate and inserted metal connection in the tensile joint.

As temporary stadium in an urban context, the stadium could play a role on different levels: on the urban scale the living bamboo is implemented as green belt to support the recreational value of the strip. On a building scale, by integrating function, structure, detail and climate with spatial quality and light, the project intends to be an appealing alternative for - and act as a stimulator of activities in - the concrete and impersonal jungle of Brettenzone.

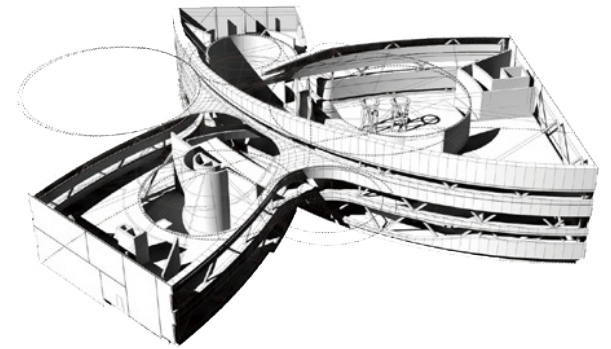


Culture complex

Westerpark | Integrating digital design and digital workflow

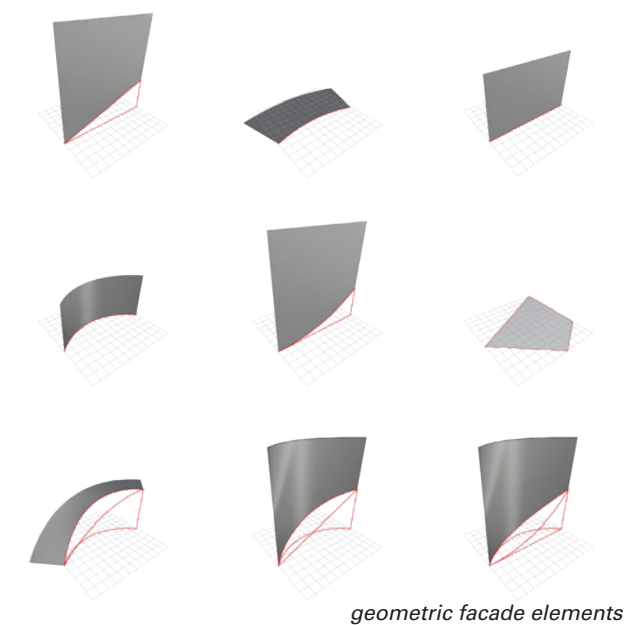
a design by Yuxiao He

tutors || tjalling homans | engbert van der zaag | martijn stellingwerff



"How to articulate a building out of complex geometries?"

Westerpark Amsterdam, my chosen site, will be the most important green wedge for local citizens in the development of the metropolitan Amsterdam in the coming few decades. As an extension was proposed, experience from the history of this park had been highlighted before I studied how previous landscape architects processed this abandoned industry land and respected the ecology and nature, which valued this urban park the most.



During the design process, digital approaches were used to initiate my design, such as a swarm behavior system simulating the basic participation animation of visitors, as well as another parametric geometric set out, which was closely linked to my technological fascination of rationalization and fabrication. One of my main tasks was to figure out how precious features of the urban park could be reflected on the programming of this building. As a result, various functions were compacted composing the exciting and flexible program of the building. Much effort was put on the research of the current operating mode. Basically the integration of bottom-up method with top-down idea set up my workflow, combining considerations on both design and technology.



Architectural Engineering

Paris Les Halles (2014)

Image: Marcel Bilow







STOCK

If you feel connected to start your graduation project from the perspective of the existing, **STOCK** is a topic for you. By looking carefully to what is already there, you can reveal your thoughts about the question how to intervene.

Ideas for interventions can be of a wide range of varieties: the upgrade of existing housing stock to measure up to our comfort needs; subtle or crazy ideas for the vacancy problems of former office buildings or product development of interiors or facades; the interventions could differ from the scale of a product, to the scale of a building to the urban scale. It can lead to a strategy, it can lead to a design.

Stock is about the potentiation of the existing by looking differently to what is already there, by making use of a technical fascination, by studying the question behind the question, in relation to current or future needs.

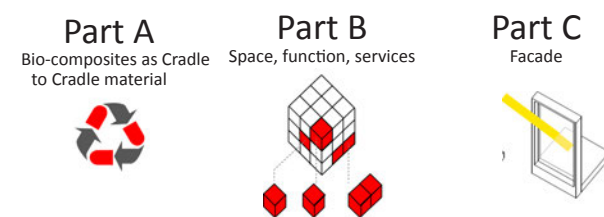
This year we offer a work-together with the RMIT studio as well, to focus besides the vacancy problems and needs also on the cultural aspects of the stock: on heritage ready for re-use.

Redesign existing buildings | Make them functionally flexible and adaptable

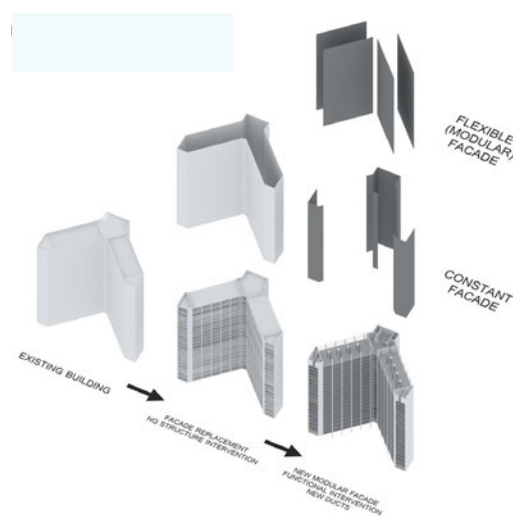
a design by Matheusz Rybak

tutors || anne snijders | maarten meijs | marcel bilow

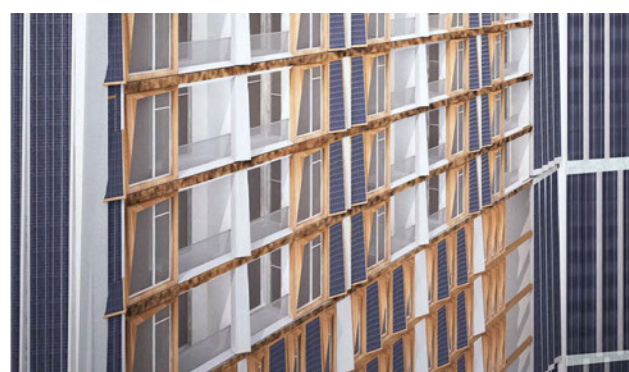
The idea behind the design is to solve the problems of the transformation of existing facilities to new space requirements, develop a fast and inexpensive method to reprogram them, based on the idea of integration of the facade with the services into the bio-degradable panel. Bearing in mind the pressure for architects, as to reduce the energy requirements of buildings and implement the concept of sustainable development, it is anticipated the emphasis on reducing energy requirements and the use of biodegradable materials (Cradle to Cradle).



The problem of the expanding suburbs of the cities, and the increasing number of abandoned office buildings seems to be a challenge for architects. Responding to the demand of spatial and functional urban circumstances, research assumed the redesign of the existing facilities in accordance with the principle of flex-buildings, based on the ability to respond rapidly to changes. In order to support the idea of unlimited transformation of the buildings, research entails the development of biodegradable panels of integrated façade, that meets the requirements of residential and office functions in terms of lighting,



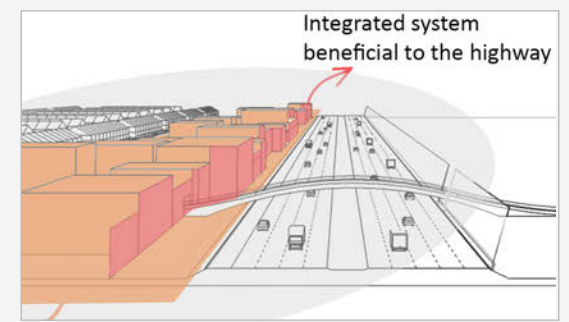
ventilation, and heating / cooling etc. The resulting panels could provide the answer to sustainable and economic transformations of the buildings, do not meet the technical modern requirements. The chosen building to re-design, and be a part of the tests, is located into the monofunctional district of Amsterdam (Amsterdam Teleport). Application of the integrated panels, adjusted to the chosen functions, can increase the social and functional diversity of the location.



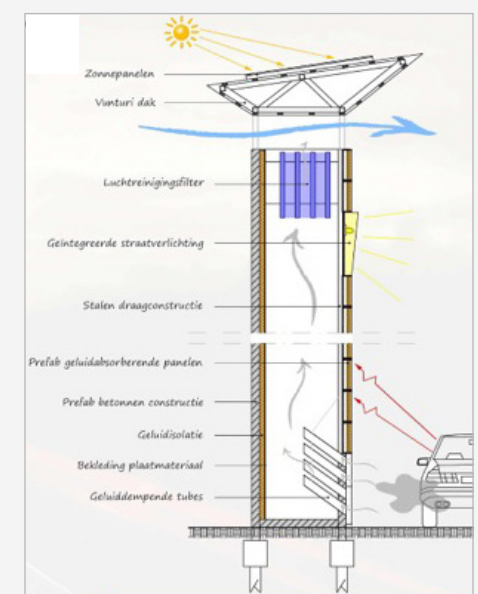
The Highway | Our future healthy living environment

a design by Arez Ali

tutors || tjalling homans | engbert van der zaag | martin ten pierik



The aim of the project was to develop ideas to transform the highway into a healthy living environment, solving the disconnecting barrier effect and the problems of noise and air pollution. The outcome is a set of strategies on the urban scale, for different housing typologies, as well as on the scale of the facade.



Driving force behind the different housing typologies is the principal of a zoned design, which is strongly interrelated with the requirements for the facade. Therefore a facade-typology was developed, that can incorporate different layers and therefore meet different requirements. On the urban scale, a set of design solutions is suggested with 'highway- and city-squares' that improve the social security.

The whole set of strategies forms a generic toolbox for a very common problem.



Crown Town

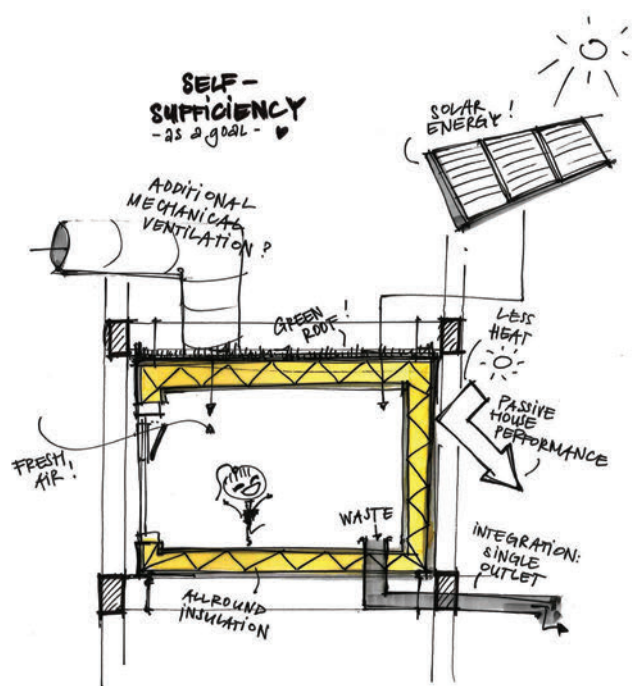
a design by Lisa van Schagen

tutors || mo smit | maarten meijs | peter teeuw

With cities reaching their expansion borders it becomes more relevant to find other ways to grow, like expanding within the existing core. This densification requires new and creative ways of urban planning. With more functions and people using the same city area, the pressure on public space and urban green increases as well, which indicates a need for greenification. It's therefore inevitable to incorporate public space and urban green in new densification strategies.



City roofs provide an abundance of unused floor space which can be used for a more dense and greener city. For this graduation project a three story rooftop village is designed on top of office building Weesperstaete at Weesperplein, Amsterdam. A generic steel frame is created that's placed on top of the existing structure. This frame holds 20 qualitative living units, five types of green, paths and greenhouses, creating a lively small town. All inhabitants have their own private green, while sharing the semi-public like vegetable green gardens and small parks. Because of the voids and stairs all stories can easily interact, which enhances the social life in the roof village community.



The roof surface enables people to live in energy neutral houses with an outstanding view. These detached houses with garden and the option of growing fresh food provide a unique living experience in the city centre of every 'crowded' city in the world.



PopUpVillage

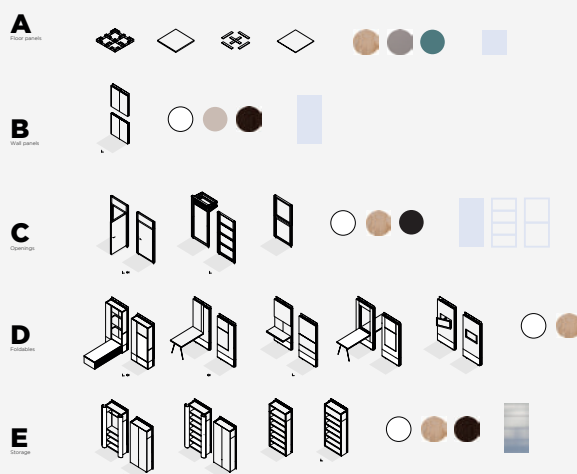
a design by Leon Zondervan

tutors || mo smit | maarten meijs | pieter stoutjesdijk

How can we transform empty offices temporarily into high quality living space, without permanently changing the building itself, and without a financial investment from the building owner?



The PopUpVillage is the result of a search for an architectural product and service that offers a complete flexible and userfriendly transformation strategy. It is a vibrant community consisting of a variety of functions, such as housing, workshops and office space. It consists of removable, portable, plug and-play homes that are put inside the offices, built out of so-called 'function pixels'. These pixels are wall elements with integrated functions, which can fold in and out, to make quick and easy transportation possible, but also to make a space-efficient transformable interior. They are small enough to fit through any door or elevator, and can be set up in less than a day. Users can choose their own types and configuration of function pixels, and so make their own ideal space.



This hardware is owned by the company PopUpVillage, who exploits it as 'mobile real-estate', funded by investors. They rent empty office space, and gain rental income by the inhabitants of the PopUpVillage. This service ensures that the owner of the offices doesn't have to do anything, but still get income with their empty property. It is a sustainable alternative to anti-kraak, but also for traditional temporary and permanent building transformation. When the transformed building needs to transform back to office space, the PopUpVillage can move out to another building, to extend the life of the building materials and pay-back time for the investments.

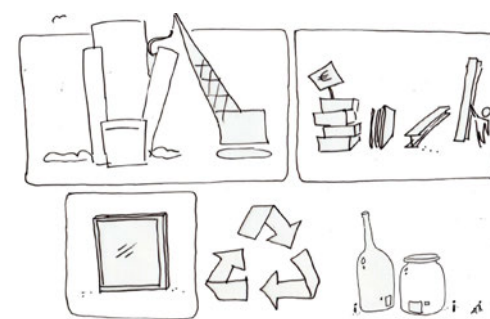


Deconstructive Re-use

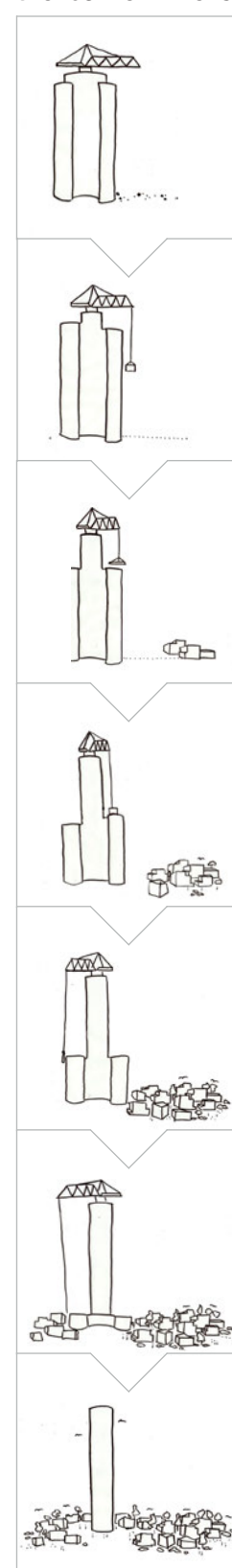
student of the studio Design as Politics

a design by Annik Roosenschoon

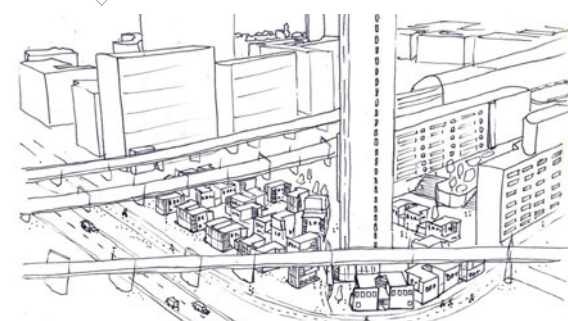
tutors || anne snijders | wouter van stiphout | bas gremmen



The new headquarter of Deloitte at the Zuidas will become the worlds biggest 'Bream Outstanding' building to be completed this October. When the company moves in they leave the same amount of office space as waste, situated just around the corner. The 95 meter high Crystal Tower in



Sloterdijk was built only 12 years ago, by order of the very same Deloitte. We see our trends change rapidly, as do our spatial demands and the bulky and slow buildings we design can not keep up with this. 'Sustainable' and 'future proof' buildings are popular terms nowadays used by architects, but they still indicate production and construction. Seen the scarceness of raw materials the act of 'building' is not sustainable at all. The current spatial needs, which in the case of Sloterdijk is affordable housing, should be served with the material we have at hand; thousands of walls, floors and roofs, hidden behind the unused closed-off mirroring facades Sloterdijk currently contains. The 25 identical floors of the Crystal tower will be deconstructed by taking apart re-usable building elements, and rearranged at the very same place to house the social class, if that is what is needed at that very moment. Sustainable building should not only be about innovative technologies but moreover about deconstruction of our 'waste' in order to re-use this for future purposes.





FLOW

Flow is the topic for those of you who see buildings as structures interwoven with their wider system. Those of you who know or suspect that sustainability claims cannot be made without integrating the factors Time and Context.

Buildings provide the setting for human activity. Human activity, by definition, is dynamic i.e. in motion, and contexts of human activity change. If sustainable performance is the aim, then buildings – and their built environment – need to facilitate and anticipate this motion.

Sustainable performance of buildings has everything to do with flows. Flows of people and flows of the resources needed to keep these people healthy, happy and comfortable.

If you want to enable building materials to flow circularly rather than linearly, then this is your topic. You can stand on the shoulders of illustrious predecessors and work on interventions that render architecture more adaptable. Think of product – and process – design innovations for better disassembly and recycling.

And if you are interested in other flows than building materials alone – energy, water, food, waste – then this topic provides a platform to develop innovative systems that support a Circular Economy. Think for example of Building Integrated Greenhouses.

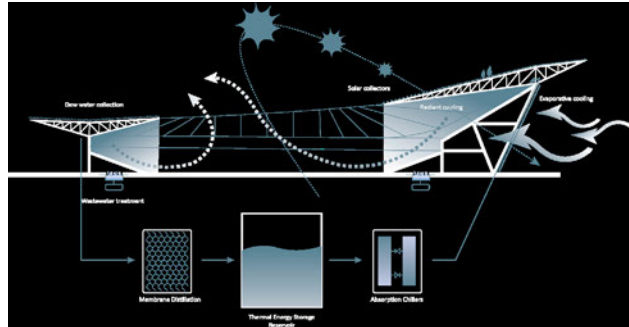
Aquatecture

ARCHIPRIX
nominee

a design by Osama Naji

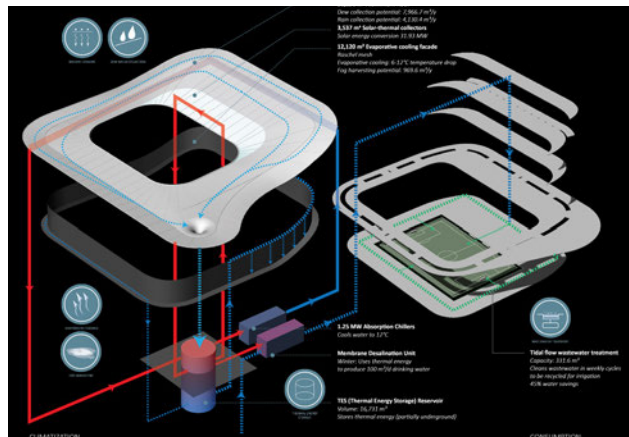
tutors || anne snijders | maarten meijs | leo gommans

This project stemmed from the fascination of the integration of water within architecture. Prior research was conducted to find sustainable water solutions for consumption and cooling that can be exposed architecturally.



The project brief was to design a football stadium for the 2022 FIFA world cup in Qatar - a hot, arid region with limited natural water resources that provides the perfect platform to implement the sustainable water solutions explored in the research.

The core theme of this project is therefore the integration of water as a driver of the design design that explores how water can be celebrated in a region with a great but somewhat lost tradition of water-use in architecture and public spaces.



The stadium collects water by condensation through its dew (and rain) water collection panels on the roof but also the facade which collects fog in the period when the seasons change. The facade also evaporates water in the summer when humidity is lowest and temperatures are high resulting in passive, evaporative cooling. A thermal energy reservoir stores heat energy gained through the solar collectors on the roof. This heat can be used to provide active radiant cooling with the use of absorption chillers. On-site, natural wastewater treatment recycles wastewater to be used for irrigating the pitch resulting in a drastic reduction in water demand. Finally, membrane distillation can be used to produce fresh water from seawater - with the use of heat.

The project makes the most out of its geographic location and orientation to integrate water functionally but also sustainably and aesthetically.



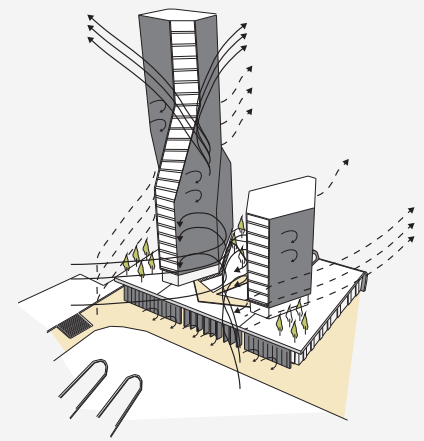
Father and son | Smart wind designing

a design by Tim Ras

tutors || tjalling homans | engbert van der zaag | huib plomp

In the Netherlands it's a growing problem: wind nuisance. We keep on building higher and technology enables us to build more extrovert shapes. These buildings have a severe impact on the wind climate in our highly-urbanized areas.

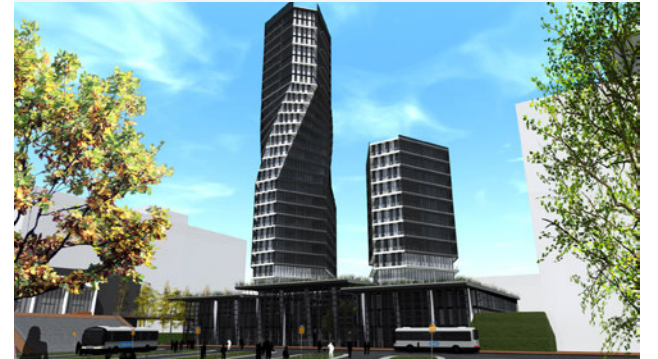
This can have a bad wind climate as a result. With my graduate research project at the Architectural Engineering studio I created, and designed-with, a method to prevent wind nuisance in the urban context, the building space and the separate rooms in a building by means of design and architecture.



The building is set in a plinth and two towers apart. The plinth acts as a transition zone between habitat and travel area for the urban fabric. The plinth functions as sort of inner/outer space. The gigantic doors make it that the space has the physics of an outer urban space but without the wind. The design of the facades are aligned to this thought of inner outer space.

The towers work as two wind-monitoring buildings. At a lower level, the towers work together when being struck by the prevailing western wind. This wind flow is then hindered by the funnel effect of the two buildings. This creates a wind-sheltered area behind the two buildings. This gives room for an urban park in this highly urban part of Amsterdam. At the higher levels of the north tower the shape 'turns' in the main wind direction there and is designed that it does not cause wind nuisance in the area. The building form and façade ensure that the difference between windy and calm can be experienced at the connecting deck on top of the plinth.

The facade is made of a polymembrane which also acts as a windbreak for the opportunity to have a fully open facade at higher altitude. The facade has a 44% perforation. This fact, and the black color, is enough to make, up to a distance of 10 meters, to watch right trough it. Effortlessly through, this gives the ability to create a enormous open facade experience without having the wind nuisance in your living room. The floor plans follow this concept by opening up from the stabilizing core in the direction of the facade and the atmosphere.



Hilland | Engineering the Landscape

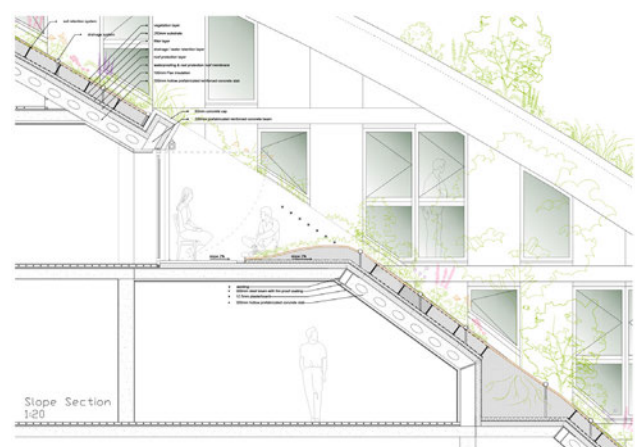
a design by Maria Kaskerali

tutors || anne snijders | maarten meijs | siebe broersma

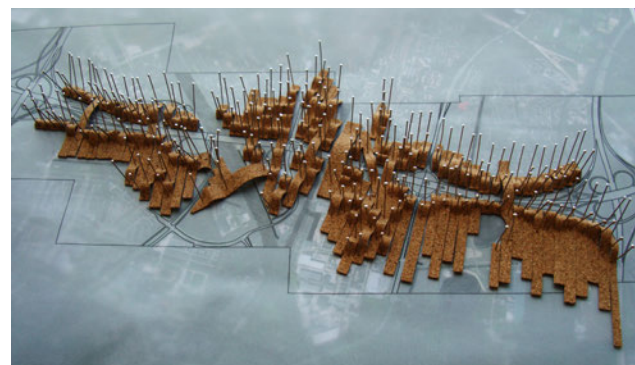
How can building and landscape be merged and made to respond to the problems present in a highway environment, by turning the earth berm sound barriers into a smart solution and exploiting their potentials?



My intention is to create a benefit for Dutch society, by proposing a solution to problems that matter. My project faces local topographical and social circumstances, such as the lack of living space, the focus on sustainability and the innovative architectural approach. In the condensed Netherlands, we cannot afford to have only one use of urban space, thus environments are continually being improvised. The city of Utrecht's need for expansion leads us to interpret the urban networks in new ways and proceed to "place making," by developing problematic places with no former



value within the city's confines. The intervention at the A12 highway, converts it from a solid transportation mass into a constellation of living clusters connected with the city. The proposed multi-level structure in the form of undulating hills emphasizes that nature and urbanity are no polar opposites. It is a place making that suggests a new way of living, where architecture fuses with land bringing environmental improvement. It's fun, funky and encompasses the vitality of the route, the connection to the city and "green" living. Moreover, an innovative heat storage system makes the design self sustainable in terms of thermal energy.

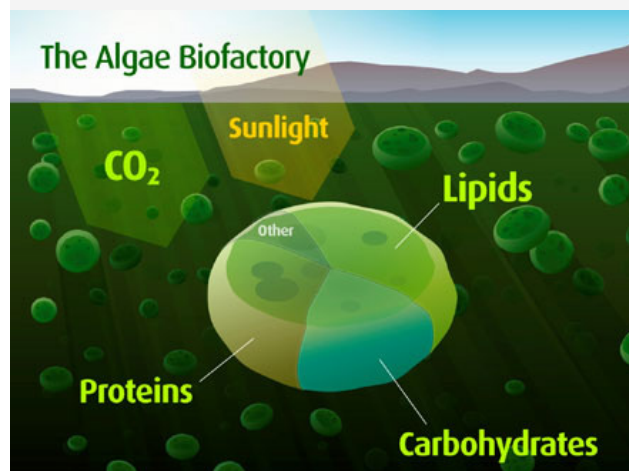


Algaetecture

a design by Fong Qiu

tutors || anne snijders | maarten meijs | marcel bilow

Algae can be the solution for growing and polluting cities. Algae can purify the air, absorb CO2 emissions and becomes a food and energy source for a sustainable and self-providing future.



Algaetecture is about creating a more dynamic kind of architecture which changes its appearance throughout the day. This is the result of cultivating algae in close photo bioreactors. Algae grows when (sun)light is absorbed and increases its biomass and influences the transparency of the bioreactor. This effect is used for a dynamic sun shading system that adapts to the weather conditions.



These photo bioreactors are in all kind of shapes that can form the architecture for different purposes. The different shapes and applications of algae resulted in a transformation of the Amsterdam Sloterdijk railway station. The algae cultivation can vary in scale from small pipes which can be situated in the façade to big scale pyramid photo bioreactors on the roof. This scale is an important aspect of the design to create different experiences for commuters, residents and workers in this building. Together it forms a building with a mixture of functions and ever changing appearance.



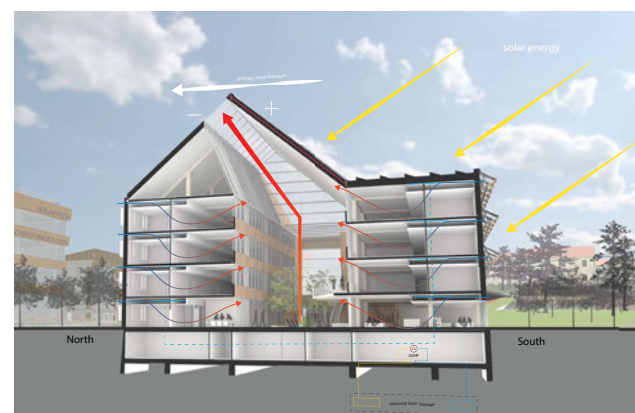
Energy producing architecture | Johannesburg Science Park

a design by Sergey Fedatsenka

teachers || anne snijders | maarten meijs | regina bokel

A sustainable energy research centre, optimized for several users

Energy Producing Architecture project is an investigation of a correlation between building energy efficiency and building integrated energy production versus architecture. The finding of the right composition of the design elements which would answer technological and architectural requirement was the most important part of the design process. Once found, every aspect of the design became a part of the large, architecturally correct, energy producing system. It became like a machine where each detail serves a purpose whether it is technological, architectural or both.



climate design vs. interior architecture



energy production

Based on the preliminary energy calculations Johannesburg Science Park produces about 68% more energy than it uses, which is about 109 480 kWh/year. This would be enough to provide 23 households with 4 persons with energy throughout the year. Therefore Johannesburg Science Park serves as a statement that energy producing buildings are possible.



aE studio alumni

Chen Shen works at MAD Architects in Beijing

The graduation year in AE studio has influenced me a lot even though I have left Delft and worked for MAD architects in Beijing now. The study and life in AE graduation studio has not only taught me the knowledge of how to develop our technical fascination into a real architecture with high quality, but also how to develop the research and design in a scientific way. In this year, my understanding towards architecture has to be broadened and has gained more interests to the region of material and structure. To develop the design in a more materialized and technical way is like open another window in my life which I will always be grateful for. I like and cannot forget the experience of discussing the essence of architecture from the technical angle

in the studio which contributes to me a lot to be a better architect.

MAD Architects is an office full of energy with the staff from all of the worlds. The work here is compact but challenging. We are doing some competitions as well as many real projects. There are various international projects that are ongoing like the newly announced Lucas Museum of Narrative Art in Chicago. MAD is always attempts to combine human spirit with natural landscape to build a city in harmony with the nature and human which is the philosophy of Shanshui City. As a new staff here, I learned a lot from the view of considering design based on traditional art and culture.



Yuxiao He started at UNStudio in Amsterdam

The two years' study of me in Delft was quite self-fascination-driving, the second year in AE was pretty exciting and achieving, had given me what was beyond my expectation before my choice upon AE graduation studio. The well-organized agenda as well as adjacent lectures and seminars set up a really good base for my research on complex geometries, from which the following architectural design phase benefited a lot. I feel sincerely grateful for my mentors, who were always critical, helpful and patient, holding high criterion of both technology and design.

My currently working in UNStudio Amsterdam office is designing an urban complex composed of a podium and three towers in the city of Melbourne, integrating living amenities with urban context. My thinking from an engineering perspective helps me a lot proposing coherent and convincing ideas. In terms of digital modeling, my graduation research topic matches so much with UNStudio's fascination of rational geometries. The whole office is network-based, as

it's named United Network Studio, much internal resources are being shared and communicated, including various libraries, customized scripts of tools, researches and updates of some ongoing confidential projects. UNStudio has its own training system and knowledge platforms, everyone in the office is obligated to contribute and learn from each other. Last but not least, the office has a great atmosphere full of talented designers who are passionate about outstanding design, and free beers and snacks in the kitchen every Friday afternoon!



RAPIDstudio - a startup by five aE students

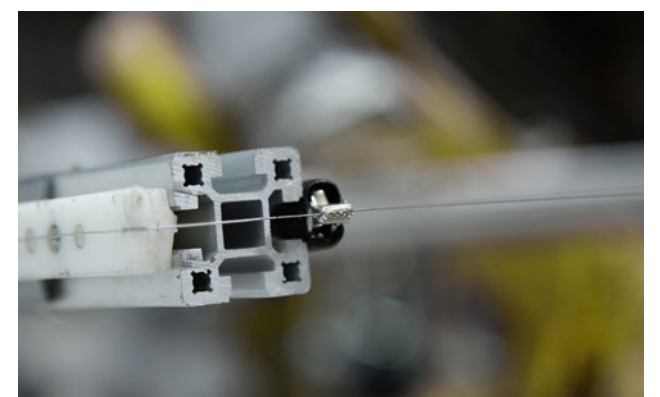
Léon Spikker, Wessel van Beerendonk and Matthew Tanti recently graduated at aE. Within their graduation they all researched the application of industrial robots in architecture and construction. In their graduation projects they used, respectively, prefabricated concrete, in-situ insulating concrete and Maltese limestone to express the architectural freedom these robots have to offer.

Together with Frank van Brunschot and Lucas ter Hall they decided to put their newly gained expertise into practice by starting digital design and fabrication firm RAPIDstudio.

These alumni decided to put their newly gained expertises into practice by starting digital design and fabrication firm RAPIDstudio

RAPIDstudio seeks to implement new digital and robotic tools in the building process, and designs and produces for clients in various industries.

Currently, we're applying robotic milling and hotwire cutting to realise complex designs for the concrete industry, stagedesigners, filmmakers and real estate developers. We're also developing a large scale 6-axis 3D printer with interested partners from the shipbuilding industry.



RAPIDstudio is always looking for clients and partners who seek a fast, reliable and cost-effective alternative for the realisation of amazing, complex architectural objects.

contact: l.spikker@rapidstudio.nl



third edition

aE Day 2015
19 March 2015 – don't miss it!



As little design as possible

Thijs Asselbergs, Architect and Engineer

"In architecture and building technology it's about finding the right balance between space, material and climate. This integration can be developed, you can learn to design and to research it. Architectural Engineering functions as a semi permeable wall that regulates and stimulates the technical and physical influences on an architectural design. Architectural Engineering searches and finds essential building components that are integrated optimally in a design.

In this way, the studio of Architectural Engineering, founded in 2008, could become a laboratory for innovation and technical research

within the department AE+T. Under the nickname INTECTURE® what follows for designers is a search for integrating technology in architecture. The bud has been planted; the new assignment is being researched.

For us, it's about bringing together technical research in architectural education. It's about current assignments, where we are challenged to build in places that are otherwise difficult because of for example environmental constraints, or on or alongside large infrastructural works. aE-studio can contribute a great deal to these questions by innovation and integration of questions of energy and materials while designing new buildings or transforming existing ones. Or some of you are looking for zappi. Zappi is the material that can do everything. It is an imagined omnipotent

building material that (currently) does not exist. Zappi symbolizes an attitude, a desire to create the optimum enclosure for mankind. It also represents progression. For an architect can only be truly innovative, when he is able to convince and engage clients, manufacturers, contractors and end users.

Designers then become design-engineers, asking new and challenging questions to scientists, providing a medium where research can be done cooperatively. Architects have to be capable to optimize form while minimizing material use and by logically integrating technology. A good design has a simple concept: as little design as possible.¹"

¹ see: ten principles for good design by Dieter Rams

p o w e r e d b y i n n o v a t i o n

INTECTURE



PhD

aE Research

The New Architect

What is the role of the architect within society and the building process?

De Nieuwe Architect (The New Architect, DNA) is an investigation of the position of the architect in this transformative time. What is the role of the architect within society and the building process? What is his position? To whom belongs the authorship? What expertise does he (still) require today? Are you a generalist or a specialist?



These are all examples of challenges that DNA questions. DNA is a platform supervised by Thijs Asselbergs, with committed students and fellows from the Faculty of Architecture at TU Delft. DNA promotes associations with organizations that want to serve and strengthen the general interest of the architect.

more info

contact Thijs Asselbergs
m.f.asselbergs@tudelft.nl or
 look at www.facebook.com/DeNieuweArchitect

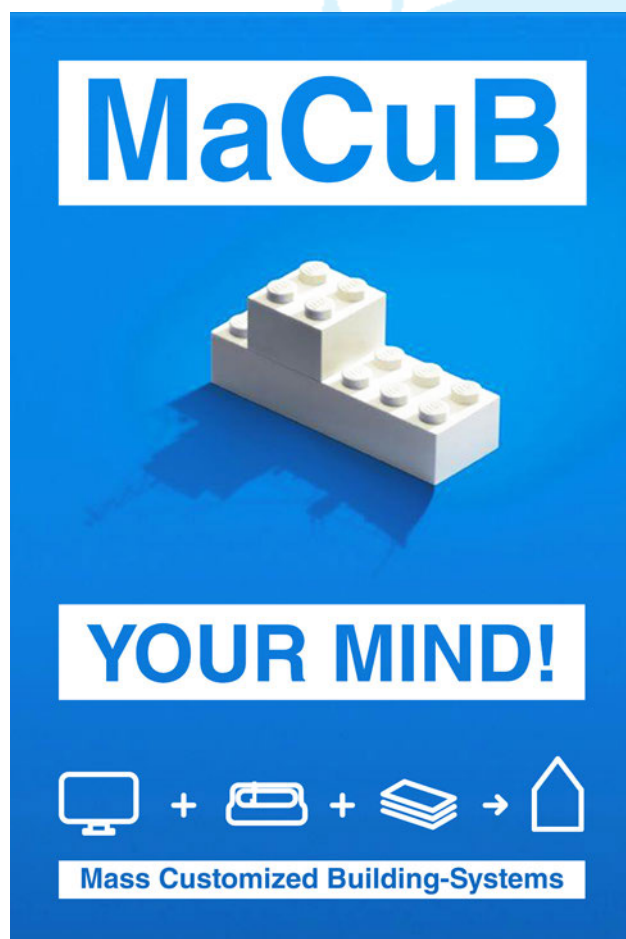
MaCuBs

The 20th century knows many examples of failed experiments to integrate the mass-production potency of the First Industrial Revolution into architecture. Experiments that were all based on rigid product solutions; with a lack of flexibility in political, programmatic and technical sense. The "one size fits all" worked for a car, but not for a building. Architecture is highly context-specific product, rooted in local culture, local climate and local urban setting.

At the start of the 21st century we are at the beginning of a New Industrial Revolution. One in which digital fabrication technologies create a direct connection between the digital and the physical world. Atoms are the new bits. This new

industrial revolution offers 'mass-customization' with the benefits of 'mass-production'. The same unique digital model that is used during design and engineering can be sent directly to digital fabrication machines to be physicalized on full scale. In the field of architecture the New Industrial Revolution provides the opportunity to fully re-integrate currently fragmented disciplines of design, engineering and production.

MaCuBs – part of graduation studio Architectural Engineering – is developing and applying building systems created through these subtractive digital fabrication techniques.



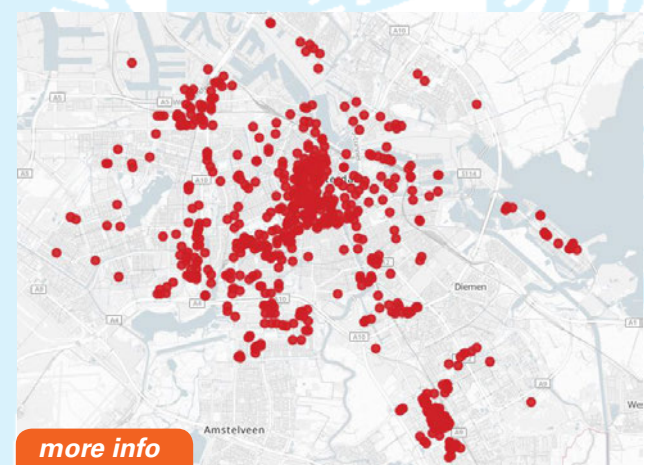
Opposed to most additive digital fabrication techniques (like 3D printing), subtractive techniques (like 2,5D CNC milling) already have significant applicability in the realization of buildings today. MaCuBs – part of graduation studio Architectural Engineering – is developing and applying building systems created through these subtractive digital fabrication techniques. Through research, design, prototypes and pilot projects MaCuBs explores the potential of these digitally fabricated building systems. Many aspects of the New Industrial Revolution are involved: open source knowledge, fab-labs, mass-customization, local production, file-to-factory, new business models, new collaborations between architect and client and new kinds of ornamentation.

more info

contact Pieter Stoutjesdijk
p.m.m.stoutjesdijk@tudelft.nl

Tools for Re-Use

The purpose of this investigation is to develop Tools for Re-use for vacant non-residential buildings. Tools for Re-use include generic architectural and engineering strategies for recycling different types of utilitarian buildings. The challenge is to determine the effect of the generic strategy on the cultural, usage and future value of the specific utilitarian building type. The research is executed in collaboration with Abram de Boer of the Amsterdam University of Applied Sciences, and the Real Estate & Housing Department and the RMIT section of the Faculty of Architecture at TU Delft.



more info

contact Abram de Boer a.de.boer@hva.nl

aE Research

PhD

SuperUse Studios



As a result of the material-experimental design approach, Superusestudios decided to develop their own tools and strategies to support their practice. They put together a multidisciplinary team, including chemists, environmental scientists and analysts who can help designers turn cities into a living web of connected material processes and flows. They developed tools such

SUPERUSE STUDIOS

as from the Superuse Relevance Indicator and Environmental Impact Calculator to help ground our design strategies in rigorous scientific practice. Another tool, the Harvest Map, offers a geographic representation to help identify and prioritize waste materials in the vicinity of a project site. They recently developed a tool for shortcutting regional and local material streams.

more info

contact Jan Jongert jan@superusestudios.nl or go to www.superusestudios.com

Professional Experience Program

The Professional Experience Period (PEP) is an initiative to provide recently graduated architects with a professional field experience. From January 2015 a minimum of 2 years of guided professional experience will be mandatory in order to be granted to the registry of architects. For over ten years



the PEP has been advancing an integrated program for prospective architects, and boasts a large network of experienced mentors who convey their knowledge to the next generation. Modules are organized by theme: ranging from entrepreneurship to European tendering, and from contracts to an insight in working with public authorities.

more info

contact Jullietta Zanders j.zanders@pao.tudelft.nl or go to www.pepnl.eu

Pret a Loger

Pret a Loger creates a sustainable, vibrant and enterprising environment and was exhibited internationally at the large Solar Decathlon competition in Versailles during the summer of 2014. A group of students from TU Delft, supported by a broad team of specialists, engage in creating a second, sustainable life for the classic post-war Dutch terraced house. By creating a greenhouse at the garden side it gets a second skin where energy can be saved, and additional living space for both summer and winter conditions can be created. Since august 2014 the prototype is part of the Green Village on the TU Delft campus.



more info

go to www.pretaloger.nl

PhD

aE Research

IBA Parkstad



means that citizens, businesses, governments, architects, urban planners, foundations, community organizations, private individuals, schools and pupils, universities and students, partnerships, stakeholders, networks etc. are invited to submit small or large IBA-projects that will make the transition of Parkstad smarter, faster and improve the visibility.

Until 2020 IBA Parkstad acts as a laboratory and driver for innovative and leading projects. IBA is a quality machine that represents only the best and acts on that. IBA Parkstad represents the transformation and transition of Parkstad in Zuid Limburg and has to give an impulse to a structural improvement of both living and working environment. It is important that Parkstad remains an attractive region that can be dynamic and flexible. A characteristic for IBA Parkstad is the idea of open innovation. This

more info

go to www.iba-parkstad.nl

Coastal Living

Rijkswaterstaat is challenging students of the Technical University Delft to design proposals for **innovative coastal building**. To maintain the Dutch coast in optimal state new forms of coastal buildings are needed; buildings that do not



obstruct but strengthen the dunes that protect the hinterland. This can be done by adaptive, aerodynamic, C2C of mobile forms of building. Rijkswaterstaat asks students to come up with new answers to make coast-friendly building possible. The best ideas will be considered to participate in a pilot project to be realised in 2015.

more info

contact Anne Snijders
anne@annebregjesnijders.nl

Design Education

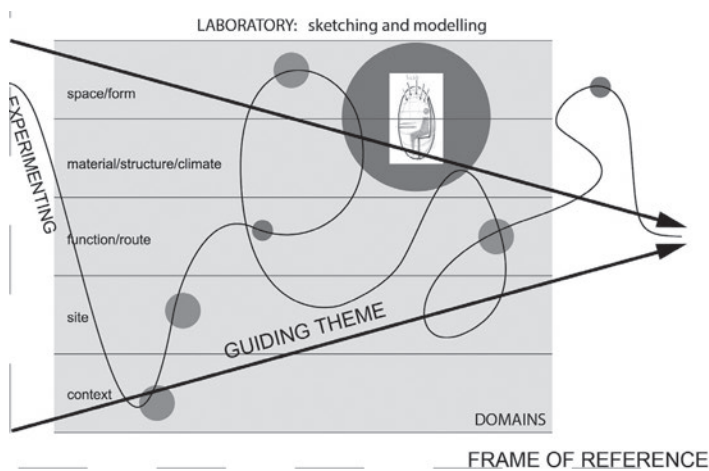


fig. 1 The five generic elements in the design process: experimenting, guiding theme, domains, frame of reference and laboratory.

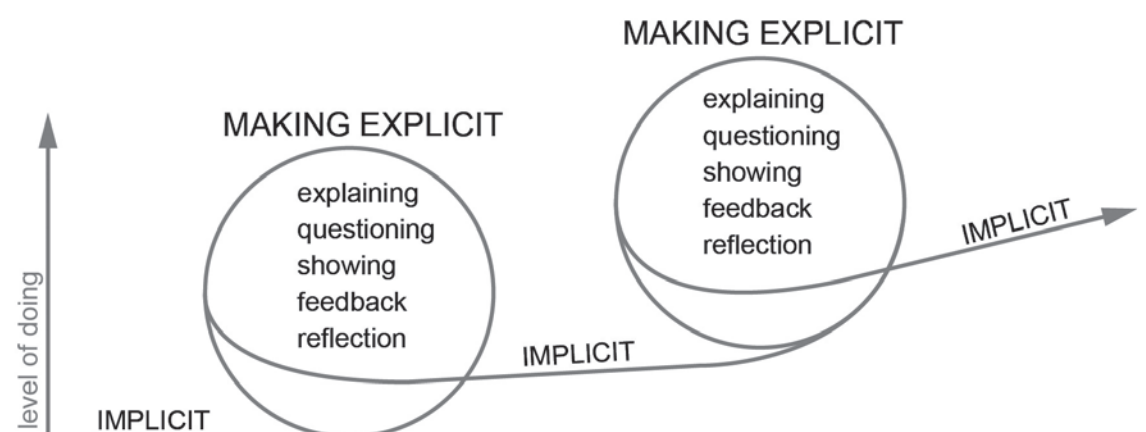


fig.2 making the implicit explicit in learning

Learning to design is the key point of education in the design studio. At the same time it is opaque. For teachers, being expert designers, performing a skill is for a large part an implicit activity. However, learning a complex skill like designing is a matter of doing and becoming aware how to do it.

Observing teachers and students at work in the design studio, they mostly talk about the design product. For example, they talk about composition, detail and the way designs (has to) fit in their environment. However, for the student it would be less confusing when a teacher also

talks about the way designers work. For example, how they experiment by making a lot of sketches and models, how they reflect, how they come up with ideas, and how they use common known principles and patterns.

For making the design process more explicit, a conceptual framework with five elements is proposed. These elements are generic in the sense that they are main aspects and always present in the complex, personal, creative and open-ended design process. Personal and cultural differences in approaches are like kaleidoscope figures in

respect to these elements. The framework helps in making similarities and differences explicit and it provides in a kind of 'language' to think and talk about the personal design process.

more info

contact Elise van Dooren e.j.g.c.vandooren@tudelft.nl

aE Research

PhD

Home@Work

Home at Work is pioneering practise-based design research that aims to improve the homes and neighbourhoods of industrial worker communities around the world through a cooperative development approach. Home at Work launches it's first pilot project in Bandung Indonesia for the upgrading of an industrial kampung related to the textile and garment industries. Local communities and companies, global brands, governments, knowledge institutes and designers join forces to show that responsible design and development can add value on many levels of society.

The challenge is to create green and liveable neighbourhoods, elaborating on existing structures already realised by communities. Due to the scale of the challenge, smart solutions



are needed to make high-density living and working conditions possible and sustainable. Proven local building methods and technological innovations go hand in hand. Design solutions of Home at Work encompass the efficient use of space, renewable energy, waste, water and food supply.

more info

contact Mo Smit or Anne Snijders
info@cococan.nl

Green Village

"The Greenvillage": many have heard the name, and some have heard the goal: "Creating a sustainable, lively and entrepreneurial environment where we discover, learn and show how to solve society's urgent challenges." 2,5 years after its launch by prof. Ad van Wijk however, The Greenvillage is still a heavily marketed idea to be physicalized on a – still literary – green grass court at the former location of TU Delft's department of Architecture.



But there are clear signs things might change in the nearby future: behind the screens the grown Greenvillage team has enthused over 70 partners and sponsors and successfully applied for some major subsidies. The municipality of Delft is currently building the physical infrastructure of the village, and the first building has already been officially opened: the Prêt-à-Loger pavilion: TU Delft's solar Decathlon 2014's entry. For students in the department Architecture, Engineering + Technology, the Greenvillage will provide great opportunities to collaborate with companies, researchers and organizations to make advancing sustainable technologies in our build environment more visible and viable.

more info

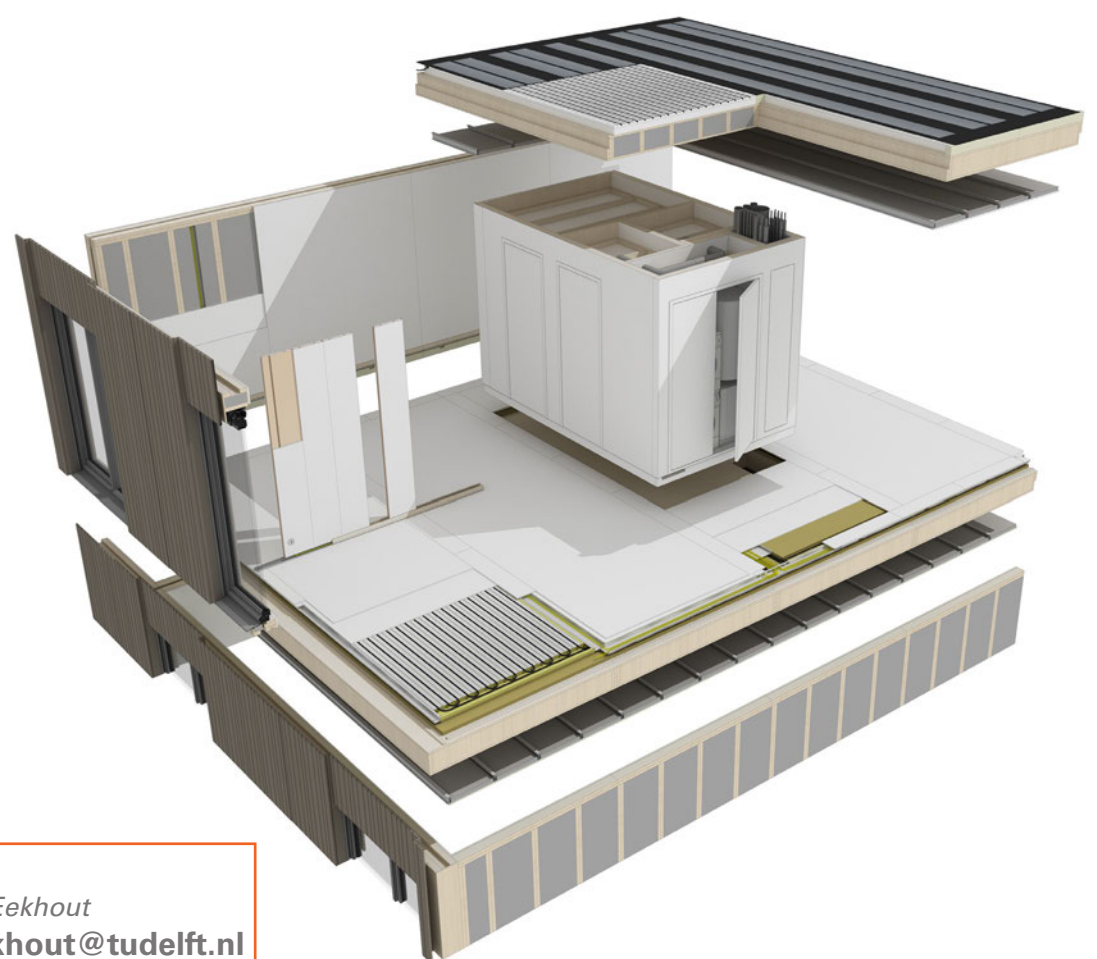
contact Pieter Stoutjesdijk
p.m.m.stoutjesdijk@tudelft.nl

Concept House

The Concept House Prototype project focuses on the ability to develop sustainable residential buildings in the broadest sense. To this end, these homes require completely self-sufficient energy consumption. With the materialization of

the building components, environmental considerations are carefully taken into account. The project is unique because of the combination of high sustainability goals and industrialization in housing. In 2012 the first 1:1 prototype

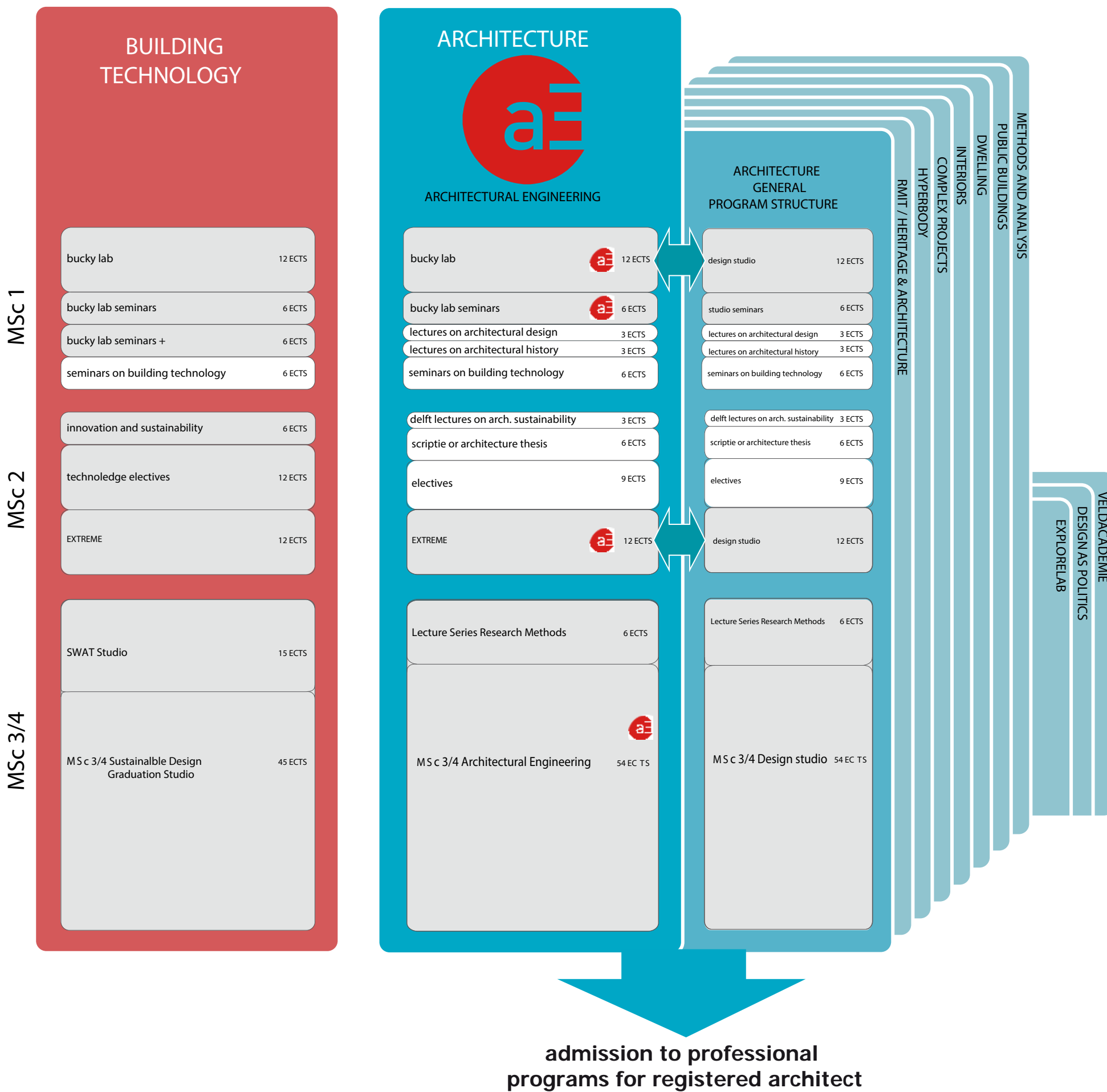
was realized on Heijplaat in Rotterdam. A large number of construction industries have committed to the project supervised by Prof. Dr. Eng. Mick Eekhout.



more info

contact Mick Eekhout
A.C.J.M.Eekhout@tudelft.nl

Programme Scheme



COLOPHON

aE journal | Volume 5, no 1/2014

Editors: Thijs Asselbergs
 Annebregje Sniijders
 Tjalling Homans
 Elise van Dooren
 Heleen van Russen Groen

Layout Design: Bureau Arjan Karssen BNO
 Haarlem
 Layout: Heleen van Russen Groen
 Print: Lenoirschuring drukkers
 Amstelveen

Publisher: Chair of Architectural Engineering

