

concrete design book on

implicit performance

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www.concretedesigncompetition.com

performance

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It was a big honour for me to coordinate the third edition of the International Concrete Design Competition. All the more so because I could rely on the professional guidance of Siebe Bakker and could work together with curator Juan Herreros.

A cycle is an adventure, a leap into the unknown. One of the most fascinating and exciting phases is following the curator's search for a theme, the underlying idea, and how it is put into words. How does he view concrete as a material in relation to the architecture he aspires to? Which property fascinates him most? How does he assess the evolution of the material? What potential does it have? What are the limitations? Gradually, the thought process starts to define the theme. Step by step, the process moves towards a summary and expression of the underlying ideas in one all-encompassing slogan that defines the content of the cycle in a concise and intriguing way.

The theme chosen by Juan Herreros and its expression as 'Implicit Performance – Exploring the Hybrid Condition' initially aroused consternation, but that soon gave way to amazement and surprise. It took a while before the industry had fully grasped the underlying richness of the proposed idea and realised that opting to explore the domain of the hybrid demonstrates so much insight and originality.

The result, as this book reveals, is astonishing. The theme obviously formed an almost inexhaustible source of creativity. The projects submitted by the students and the results of the master class show innumerable possibilities of combining concrete with other materials, ideas and the like.

The strength of the concept of the International Concrete Design Competition has become very clear after the third cycle. For the students and tutors the competition is the perfect tool to learn how to discover the possibilities and limitations of a material. At the same time, the competition forms an ideal venue where the very different worlds of architecture and industry can meet, explore and strengthen each other, particularly by learning from each other. Thanks to Juan Herreros.

Implicit Performance – exploring the hybrid condition

Juan Herreros, curator

Competition Brief, July 2007

Webster's Third New International Dictionary:

Im-plic-it \ adj [L *implicatus*, past part. Of *implicare* to infold, involve, implicate, engage – more at EMPLOY] **1** obs: tangled or twisted together : INTERWOVEN **2a** (1) : tacitly involved in something else : capable of being understood from something else though unexpressed: capable of being inferred : IMPLIED – compare EXPLICIT (2) : involved in the nature or essence of something though not revealed, expressed, or developed : POTENTIAL **b** (1) : not appearing overtly : confined in the organism (2) of a culture : capable of being derived only as an implication from behavior : not apparent or overt to the people it characterizes : tacit and underlying **3 a** : lacking doubt or reserve : UNQUESTIONING, WHOLEHEARTED **b** obs: UNQUALIFIED, ABSOLUTE **4** archaic : marked by an implicit faith, credulity, or obedience

Hybrid \ **1 a** : marked by heterogeneity in origin, composition, or appearance : Composite **b** : being a linguistic hybrid <a-term> **2** : of, relating to, or resulting from the union of gametes from parents of different genotype. **3** : having characteristics resulting from two diverse cultures or traditions.

Reinforced concrete has always played an autonomous role in architecture. The division of the construction process into Skin, Skeleton, Installations and Interior organization was a major breakthrough in its day. It triggered an expansion of concrete's applications within architectural design that has reached practically all areas of building practice. But concrete has always been concrete and, where concrete ended, something else always began. Let us say that concrete has been an individually identifiable material, always protagonist of the systems in which it participates, most of the times even as the only player. However times are changing and the transparency created by the clear identification of constructive elements and materials is nowadays disappearing thus **constituting a blurred state** in which the old dream of the desirable compatibility between discriminate components has created a new condition; merging components into one another, thus making it impossible to

distinguish the boundaries between them. Concrete is a specific material with its own science and culture, and only very recently has research been started into the possibilities of being integrated in more complex systems other than its own forms of technologies and applications. To open this exploration to schools and create an experimental platform for **future applications of concrete as an integrated constructive resource** is the main objective of this competition cycle.

Looking into other areas of technical evolution, it appears that there is a common interest in dissolving the limits of what had been thought of, designed as, and used for perfectly differentiated applications. This trend in construction materials and resources, what we call "crossbreeds" or more precisely **"hybrids"; combines different ingredients**. Some of these ingredients have yet to be included in construction systems in order to create new products with properties and applications that differ from applying the same items in an individual yet collaborative way. This is however not merely a material or structural concern. There is a deeper interest within this research generated by calling upon the **integration of different fields of knowledge**, methods of design, and functions. The "hybrids" of interest are those that offer complete systems. The root of this statement indicates a future for numerous extraordinary possibilities in a new construction culture. "Hybrids" play an exciting role because apart from being structural, constructive or efficient, they should also be spatial, aesthetic and open enough to be adaptable to different situations. Thus creating conditions in which no apparent limits are found for using a wide and innovative range of elements. Including **live or "animated" ingredients** combined with recycled products or those that previously were rejected by design practices and construction science.

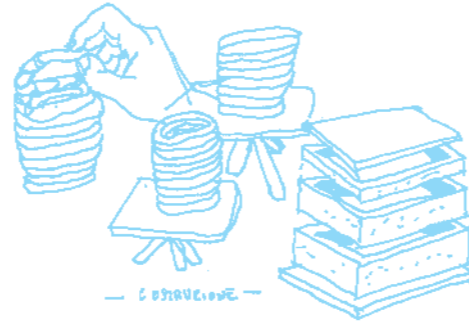
This integrating condition, which we prefer to call 'Implicit Performance', is offered through the above-mentioned possible systems and should nowadays also include concrete. This is the objective of the competition: to explore and exploit the limits of the involvement of concrete with other resources to create **new construction materials and applications** where concrete forms the basis but is not the only element at play. It is therefore a question of finding conditions of compatibility and integration –we could say a "complicity"– between concrete and something else in order to create a new material or system that adopts other characteristics. **We look for concrete surpassing its "original" performance to the point of becoming a new material** in and of its self with contemporary spatial and experiential consequences. Behind the collective work that the competition evokes, there is an interest of generating practical implementations of theoretical topics on architecture as the construction of a second nature or second life. Creating architectural applications and systems for a world that needs to seriously reconsider the material conditions with which construction and demolition takes places.

AZ072

Layering

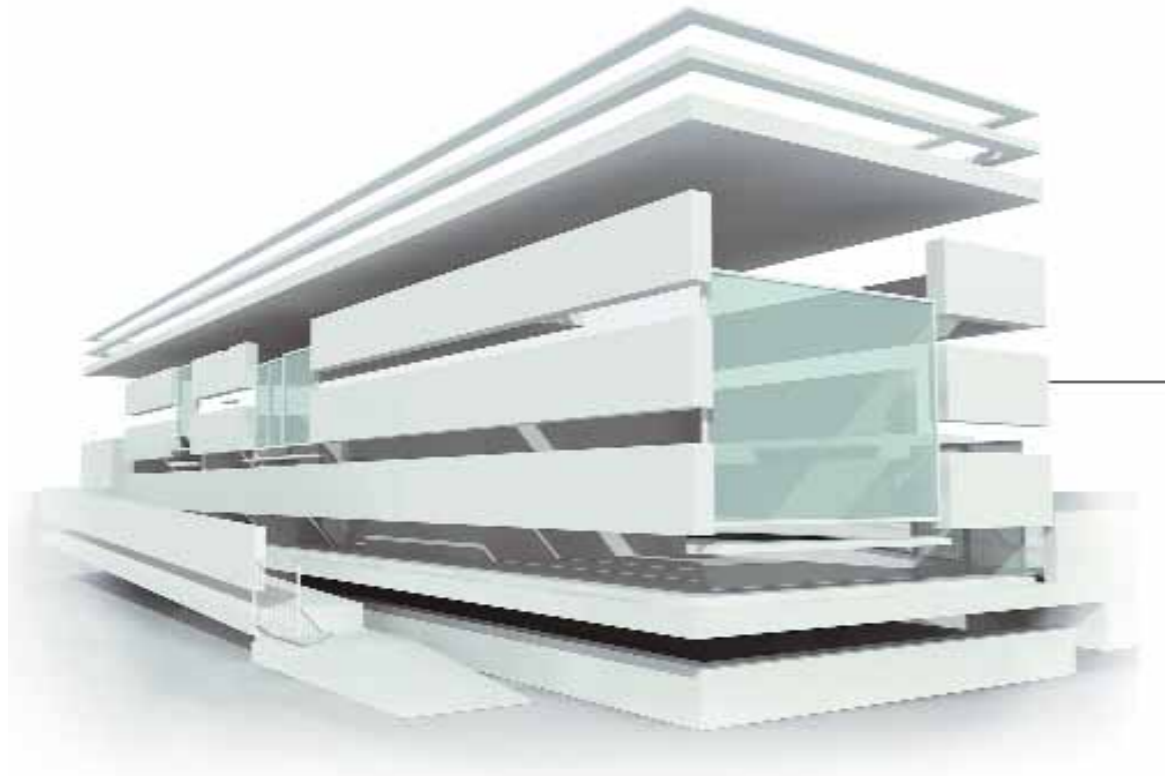
ITALY – Joint Winner

Paolo Borghino – Politecnico Architettura, Turin



The idea on which the experiment is based is the dichotomy between the shape and the heterogeneity of the substance that it is made off. In the layering I looked for the means to express a potentiality implicit quality in the same structure: the unevenness. The imperfection of the succession of castings dominates intervals that become the constituent of the project, also at a technological level. The cast of each layer corresponds to the concrete's structural system. The concrete is based on a superimposed system of layers; in this way what usually is considered a manufacturing defect is underlined.

[Italian National Jury] 'AZ972 "Layering" awarded for the interesting study of the material, in particular of the stratifications of different concrete mixture designs. Each layer is an element with a structural function, with its own mixture design (defined "magic formula" in the project), and is cast after a three-hour interval from the preceding one. Hence an exploration of the implicit technological properties of the material.'



BV007

Luminous Concrete

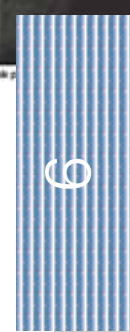
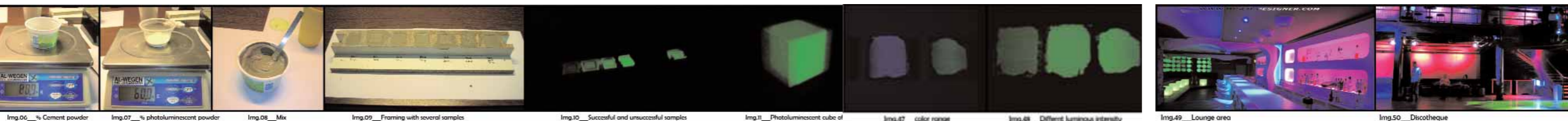
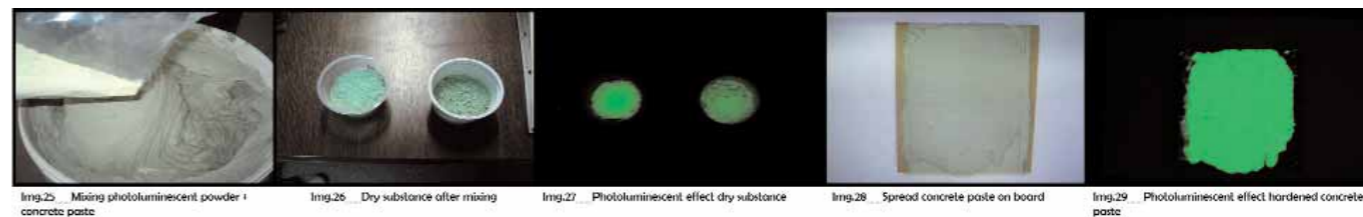
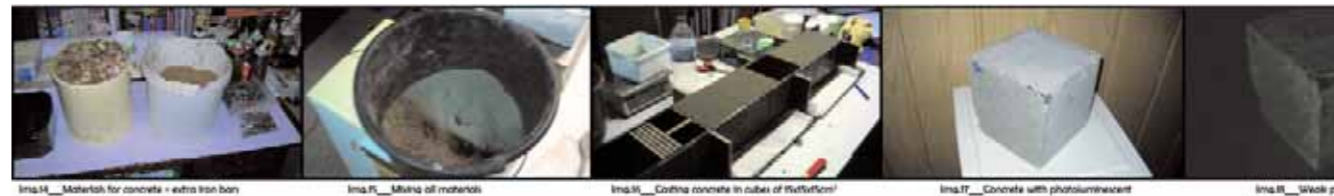
Belgium – Joint Winner

Berten Vandael – PHL Architectuur, Diepenbeek

Research shows that a mixture of ground concrete (recycling), marble powder and polymers form a perfect paste. The plasticity of this concrete-based paste is suitable to be sprayed under pressure after adding thermosetting plastics. This technique enables us to spray thin layers of concrete on all kinds of materials, such as concrete, wood,... After adding the photoluminescent powder to the concrete paste we obtain a very dry intermediary product. This dry intermediary product has photoluminescent properties. The question now is if the chemical reaction caused by adding thermosetting plastics will have consequences for the illumination. After adding the thermosetting plastics, the concrete paste is spread on an MDF board. The first test in the dark is done after hardening, which produced very good results with a surprisingly clear light. Further tests are done with different colours and different amounts of photoluminescent powder. Finally the best result is selected and a board is industrially sprayed with the obtained ratios.

The chemical properties of the photoluminescent powder tell us that there is a very clear illumination of the material during 30 minutes to an hour (subject to the absorbed light energy). Its total glow time should be about 10 to 12 hours, however this is along an exponential decreasing curve. Tests in dark rooms with different materials (photoluminescent pouring concrete, photoluminescent mortar cube, photoluminescent powder, photoluminescent glass) all confirm these chemical properties partially. The clarity of light is subject to the absorbed light (sunlight, fluorescent light, daylight,...) and the duration (3 seconds to 30 minutes) of illumination. The glow time is also subject to the absorbed light and duration.

[Belgian National Jury] 'This entry entitled 'Luminous Concrete' is conceived as the report of a genuine research about the possibility of manufacturing photo-luminescent concrete. The research is based on the addition of aluminates in the composition of the concrete. While the tests lead to an efficient factor of light restitution, they impinge against a high production cost and a decrease in strength. Further research on a concrete based paste with addition of thermosetting plastics proves to be more successful and applicable to various surfaces. The proposal includes various examples of possible architectural and infrastructural use of the luminescent concrete finishing. The panels used for the entry itself were appositely coated with the product.'



CG842

Fantasy Helps Explore Reality

Italy – Honourable Mention

Andrea Garzulino – Politecnico Architettura, Milano Bovisa

Elena Ciapparelli – Politecnico Architettura, Milano Bovisa

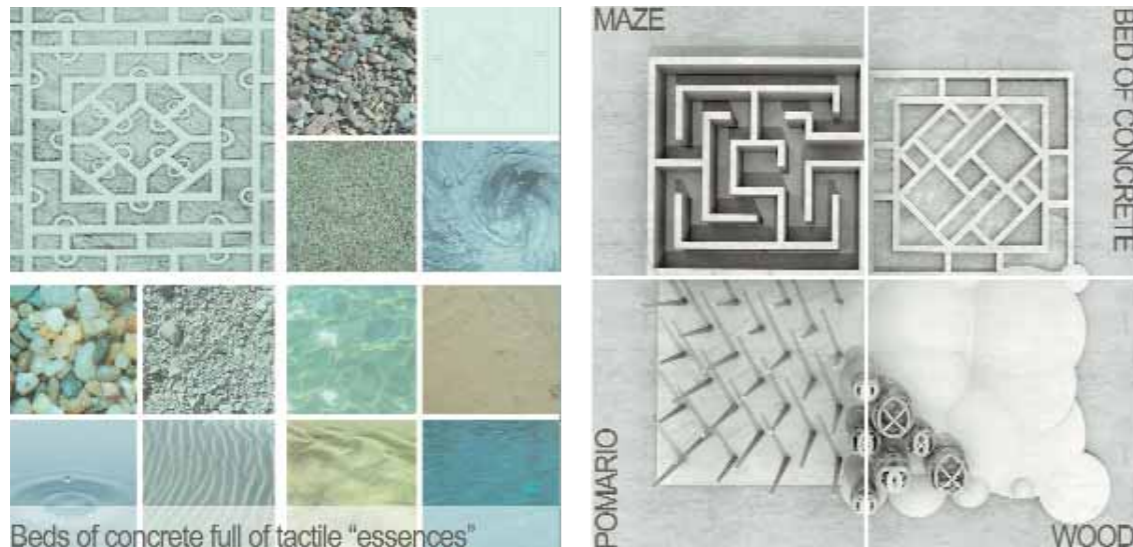
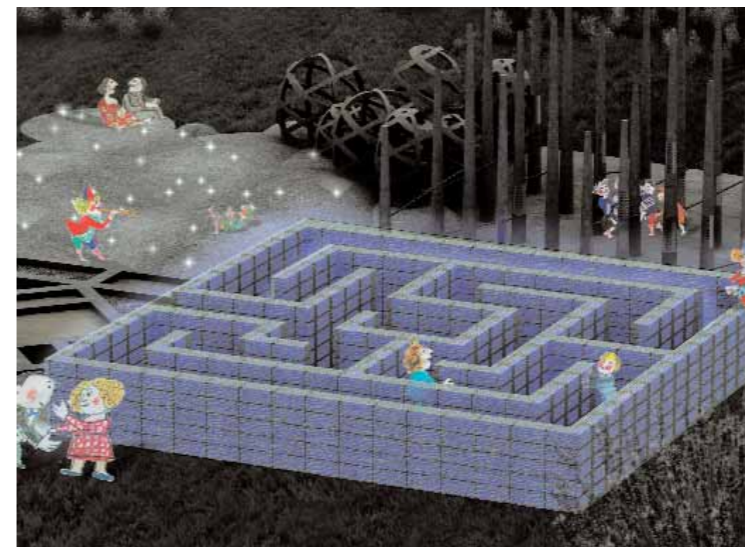
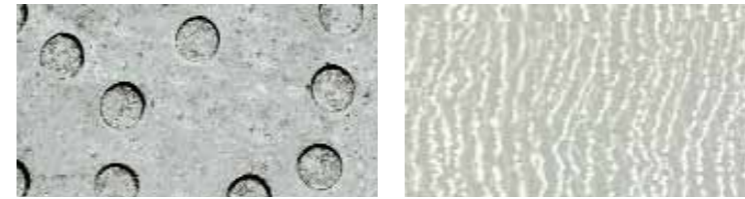
Viola Bertini – Politecnico Architettura, Milano Bovisa

Concrete Garden is a collective performance of spaces i.e. a stone garden, a space that re-interprets and juxtaposes elements of the historical garden.

A maze of lights, transparency and colours, a sounding pomario (an apple orchard with a particular layout), geometric beds of concrete full of tactile “essences” where you can experience the feel of sand, water and pebbles, a wood that you can walk through, where you can climb and where you can find shelter such is the fantastical world where children can interact with the material and its unexpected capabilities.

Performance is a way of transforming the quality of concrete materials giving it plasticity, transparency, malleability, hybridization...; but, playing with the meaning of the word, Performance has also the faculty of entertaining an audience. Thus the Performance is, in this case, the object itself: a multi-sensorial platform to stimulate and to be stimulated by.

[Italian National Jury] ‘CG842
“Concrete Garden” Deserving of attention for the freshness and inventiveness of the project: a performance of various recreational spaces made of concrete, use of glass fibre in concretes to achieve transparency. Appreciation for the graphics and the citation from Gianni Rodari, “La fantasia aiuta a risolvere la realtà” (The imagination helps to solve reality).’



Beds of concrete full of tactile “essences”

POMARIO

WOOD

CJ980

Solarconcrete

Germany – Joint Winner

Barbara Grassl – Technische Universität München

Solarconcrete is a component material of lightweight concrete and a solar element consisting of Plexiglas, aluminium coating and an absorbing black coating. It enables fare faced concrete buildings to use solar energy to heat up the south façade during heating periods. On sunny winter days, with this system the wall works like a panel heater, emitting the stored energy 6 to 8 hours later into the inside of the building.

The functional principle is based on the technology of transparent insulation; solar light is transmitted through a transparent material, which has a low thermal conductivity, onto an absorbing black coating where the light is transformed into heat.

While existing systems of transparent insulation normally create an extensive opaque glass façade, solarconcrete offers an aesthetically honest design.

Solarconcrete offers a robust solar element that is cast into the monolithic concrete wall. Because of its geometry the solar element does not need a shading system to block summer radiation. A heating/cooling system based on water tubes should be integrated in the wall to provide a control system in case of extreme climate alterations.

Solarconcrete cannot be used to substitute a heating system, but it supports the heating mainly during autumn and spring. It is a contribution to save fossil fuels and reduce emissions.



[German National Jury] 'The "solarconcrete" work shows the development of a proposal whereby precision-mounted elements in a concrete wall provide an additional means of "capturing" the sun's rays during the cold seasons of the year. The thermal energy so captured is then fed into the inside of the building in shifted phases through the concrete wall with high storage capacity. The solar elements developed by the project consist of a moulded Plexiglas part connected to an absorption element and an aluminium casing. These solar elements are integrated in concrete walls and provide not just an additional energy source but also offer their own powerful aesthetic appeal in keeping with the character of the concrete wall and with manifold possibilities for extended design.'

The project is rooted in sound technological research. All its technical aspects – from the way the angle of incidence of the sun's rays varies from season to season to the material characteristics of the various components – are investigated and presented with great conviction and plausibility.

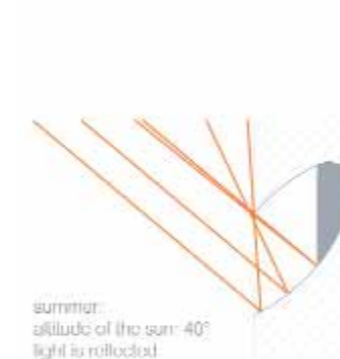
The way the work links in with the theme of the "hybrid" is particularly rich and illuminating. This also has to do with the way the work combines aesthetic appeal with technological



functionality. The author has achieved a subtle blend of aesthetic added-value and technical specifications. Not the least of the outstanding merits of this work - apart from its high quality of design and masterful constructive planning – is the elegance of its implementation and the way it invites further development. Thus it would be interesting to investigate whether any excessive amounts of thermal energy produced during the summer months could be further minimised below the set limits or whether they could be used as an addition energy source for building services.'



winter:
altitude of the sun: 15°
light is transmitted



summer:
altitude of the sun: 40°
light is reflected



CS938

Concrete Filter

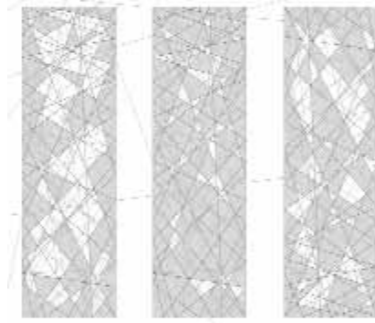
Spain – Second Prize

José Maria Martinez – U. Politécnica, Alicante
Marcos Belmar – U. Politécnica, Alicante
Santiago Varela Rizo – U. Politécnica, Alicante

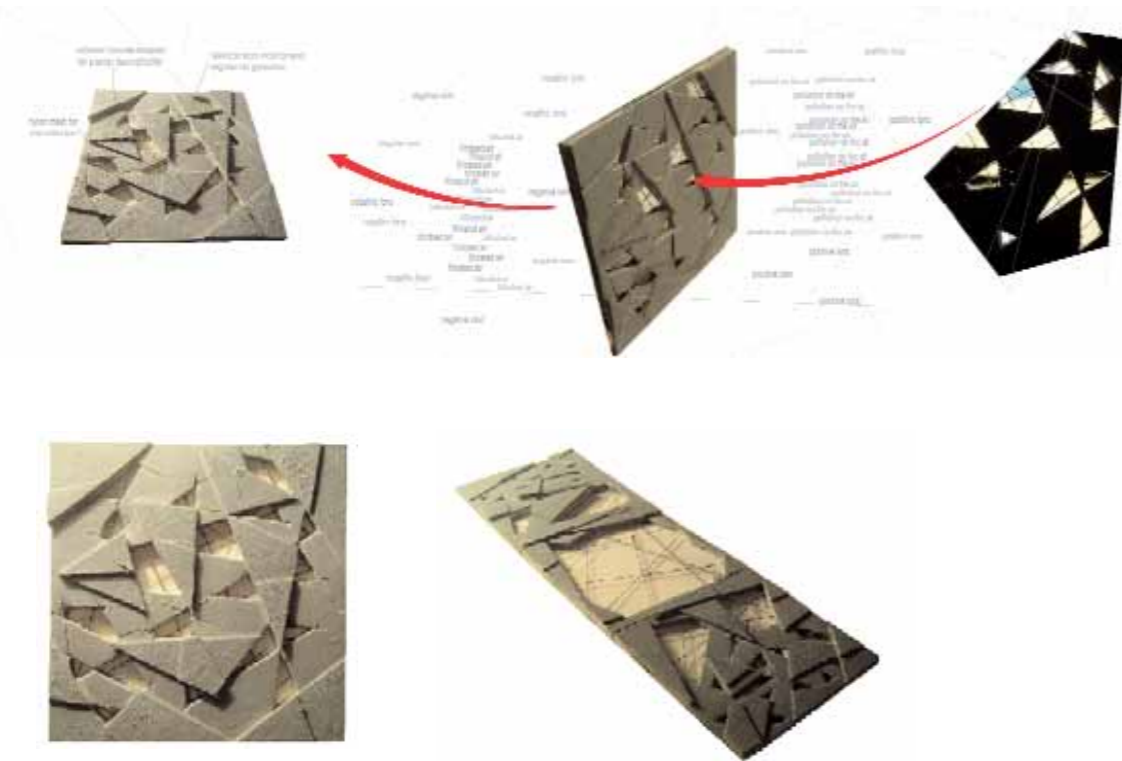
Application for a healthy city.

We propose another use for the panel. We apply it as an object on a city scale. The pollution generated by cars, motorbikes, etc. in large avenues of the cities might be reduced in order to avoid that this contaminated air reaches the apartments. We plan a huge deck, made with the same concrete panels as the skin of the façade, but used in a horizontal direction and with dimensions of 3 x 2 meters. These panels hang from stainless steel cables that are held up by stainless steel pillars.

We also propose the space between the pillars and the stabilizing cables as a bikeway (needed as a sustainable development in the Spanish cities). The pillars could also work as a support for vegetation, increasing the wellbeing during walks along the street.



[Spanish National Jury] 'The proposal "Concrete filter" has drawn Jury's interest due to its complete development covering all the steps of the design, from research to an offer of specific applications. Both the operational system and the aesthetic proposal happily meet the light and spatial effects supporting a very specific function as it is the collect of urban pollution in the air.'



DC288

WHON...

Spain – First Prize

Diego Cayuelas Garcia – ULPGC, Las Palmas Gran Canaria

The project idea is to live in a marine object. An object build under water (ecosystem submarine), but that is invented to be inhabited by people outside of the sea (human ecosystem).

The structure consists of 10 ribs that generate a liveable space inside. These ribs are linked by a skin, unifying the structure into an architectural object.

The organic geometry comes from its own forms generated at sea, as the living unit evolves faithful to the constructive process under water.

How?

Galvanic Corrosion is an electrochemical process in which one material corrodes when in electrical contact with a different type of metal and both metals are immersed in an electrolyte. Conversely, a galvanic reaction is exploited in primary batteries to generate a voltage. When two or more different sorts of metal come into contact in the presence of an electrolyte a galvanic couple is set up as different metals have different electrode potentials. When a positively charged and a negatively charged cathode are suspended in seawater with an electric current flowing between them, calcium ions combine with carbonate ions and adhere to the structure (cathode). The result is calcium carbonate.

[Spanish National Jury] 'We like the idea of this proposal due to its originality and because it stems from the local (Canary Islands) context. It leads to a construction process with a transition from the submarine ecosystem to the human ecosystem.'

At the same time the organically shaped buildings that evolve are nicely embedded in the historic evolution of architectural shapes when we compare them to work of say Buckminster Fuller or the Le Ricolais. Original we call it because the proposal (which is realistic to a certain extent only) is based on electrochemical processes that reach the boundaries of today's concrete construction with potentially large ecological value because the process of producing calcium carbonate stores large quantities of CO₂ at the same time.'



Wireline Steel Structure



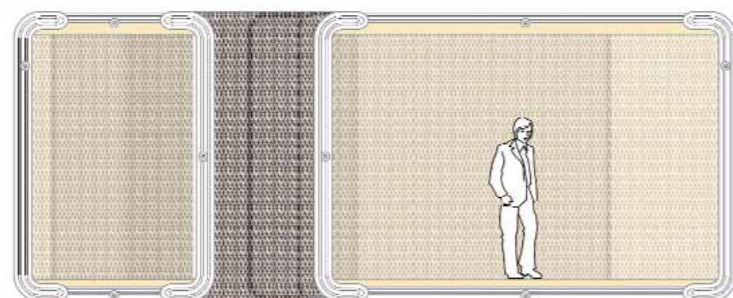
Coral Structure



Foreign Skin



Fossilized Internal



EH307

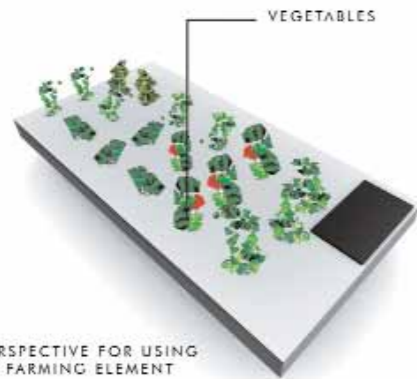
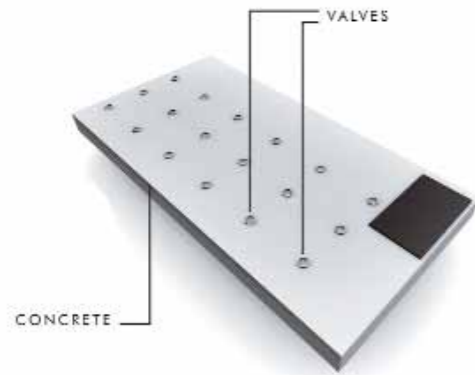
agriConcrete

Turkey – Joint Winner

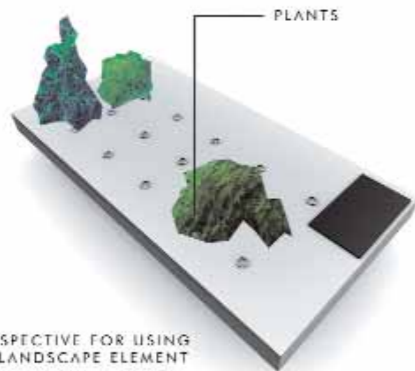
Ege Özgirin – Istanbul Technical University
Halidun Senkal – Istanbul Technical University



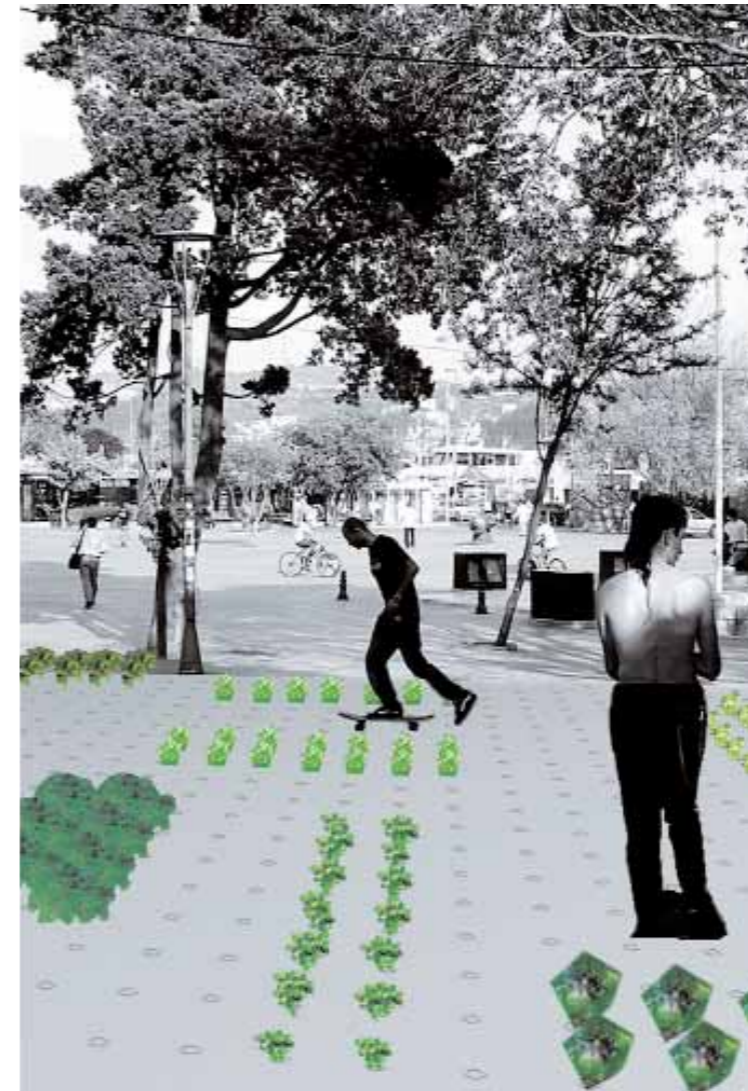
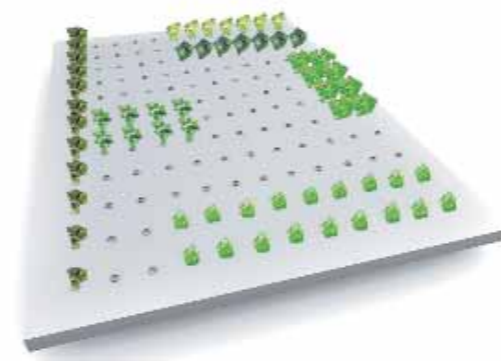
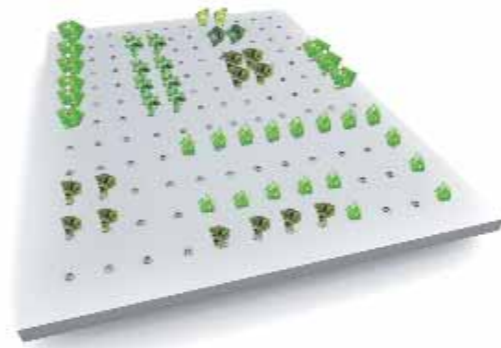
[Turkish National Jury] 'The EH307 titled project suggested to combine the idea of growing plants on soiled roofs with concrete material. The project suggests to create "concrete which enables plant growth" by adding hydro-culture into the aggregate of concrete. The jury was impressed by the idea of concrete "leafing out" by containing granules that are used in plant cultivation without soil. Furthermore, the idea of this new hybridism transforming concrete into a porous structure in time attracted the attention of the jury.'



A PERSPECTIVE FOR USING AS A FARMING ELEMENT



A PERSPECTIVE FOR USING AS A LANDSCAPE ELEMENT

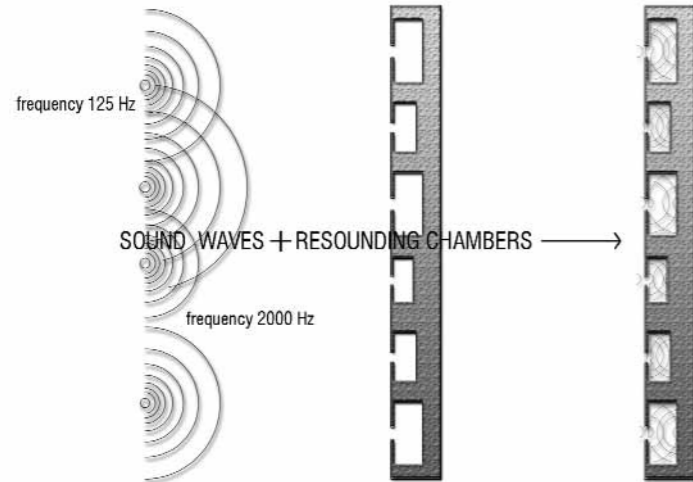


EM023

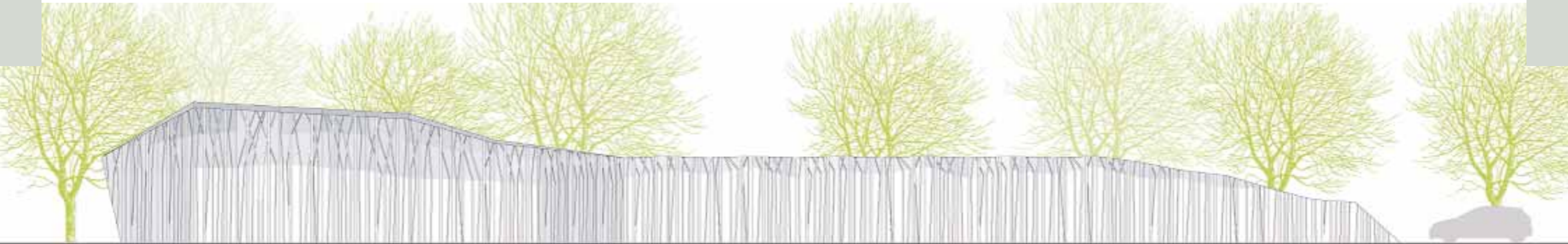
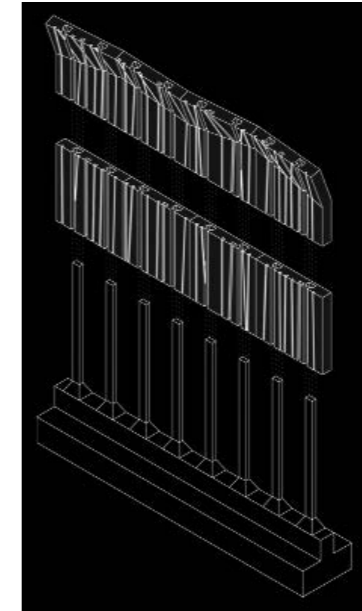
Noise-Environment Pollution Barrier

Italy – Joint Winner

Eleonora Massaccesi – Politecnica delle Marche, Ancona
Stefano Cerolini – Politecnica delle Marche, Ancona



[Italian National Jury] 'EM023 "Noise Environmental Pollution Barrier" awarded for the use of the implicit properties of concrete in the design of a barrier element with a twofold acoustic and environmental function. To develop the acoustic barrier properties, the panel is equipped with cavities that "capture" and neutralise sound waves and therefore noise. For its anti-pollution function, no-fines concrete was used in the mixture design in order to increase the surface in contact with the atmosphere and the absorption of CO₂.'



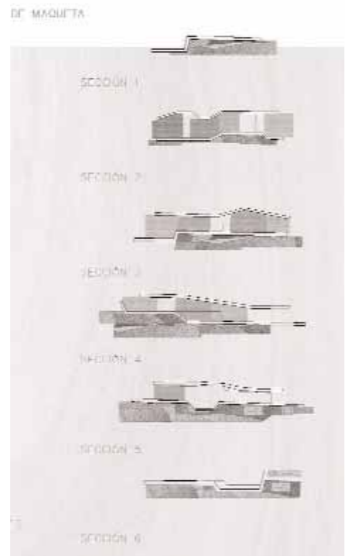
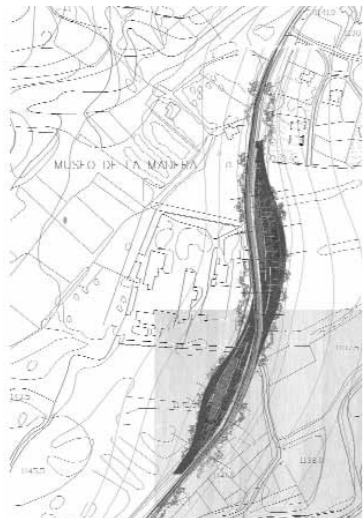
ET187

Museo De La Madeira

Spain – Third Prize

Eduardo Tajuelo del Rosai – E.T.S. Arquitectura, Madrid

22



[Spanish National Jury] 'It is a design with a great formal elegance where concrete is presented as a medium of integration with Nature.'

The proposal has a formal fragmentation very suitable for imitating organisms or plants. This is confirmed by the aerial views. Tridimensional, self-resisting forms have been avoided, vaulted forms being simple and smart.

The material has a "crackeled" appearance, similar to a lizard's skin, with a great aesthetical interest.'



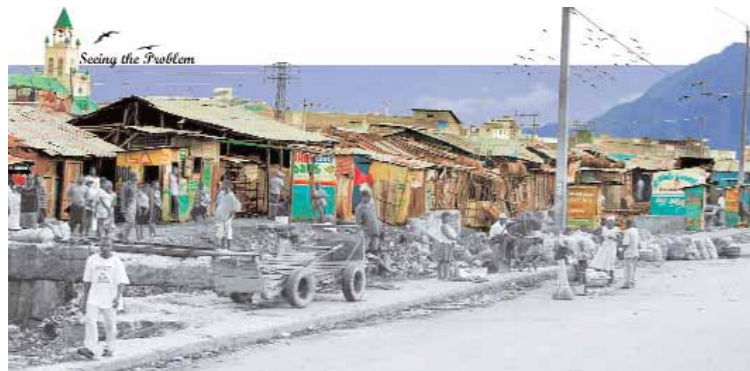
23



Inflatable Concrete

Ireland – Third Prize

Daniel Patterson – Queens, Belfast
 Jamie Doak – Queens, Belfast
 Sasha Smolin – Queens, Belfast



The Need

According to the United Nations agency UN-HABITAT, 327 million people live in slums in commonwealth countries. In the western culture we take basic tasks of life for granted. Drinking water comes straight from the tap; hot showers are taken for luxurious periods of time; sanitary waste systems are assumed; fridge-freezers and good cooking elements go hand in hand; a comfortable bed in a controlled micro-climate is a must and electricity is available at the flick of a switch. Life is different however for those who are living in 'developing world' conditions. Life expectancy for many of those living in slums is incredibly low. Many factors contribute to this, especially hygiene and shelter from the elements.

There is a need for dwelling places that families can live in without fear of their home being washed/blown away in the next monsoon season; where sanitary and hygiene conditions aren't a threat to health; and a place to sleep comfortably when the external temperature dramatically drops at night. We hope to answer that need with inflatable concrete.

Design Response

The need is clear to provide suitable shelter that could be called 'home'. Our response is to design a building that could accommodate services, provide basic sanitation and allow for the occupants to live comfortable all year round. It should have the ability to be erected in an efficient and cost effective manor and as a result be contextually viable.

[Irish National Jury] 'Inflatable Concrete was one of many entries to research the application of a reusable formwork to achieve a high level concept of multiple practical building forms or shelters through a low technical solution. The design proposals was the development of a 'flatpack' type formwork which would form a basic human shelter and thereby had the capacity for multiple applications as a low energy building form possibly for developing regions.

The Jury considered the entry represented the best design solution of all proposals which fell into this category and that the application was supported by some small-scale technical research through models, which demonstrated an understanding of the potential of the material.

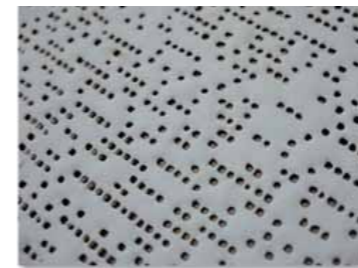
The design proposal did not push the boundary of the performance of the material in a manner that surpassed its original performance; nevertheless, through application, construction and delivery the proposal was highly regarded by the Jury.'



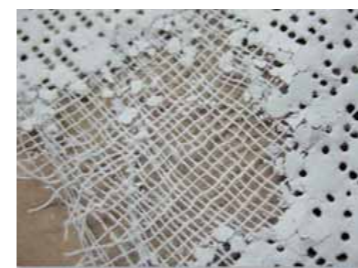
Our Solution: Inflatable Concrete

Concrete as we know it could never be inflated. As a result, we have developed a hybrid concrete based on the principal of plaster-paris bandaging.

Plaster of paris bandaging consists of a cotton bandage that has been impregnated with plaster of paris, which hardens after it has been made wet. The plaster, in this case, is held together by means of a simple fabric mesh. Our intention is to do exactly this with concrete, but on a much grander scale. In order for the concrete not to simply slide off the fabric mesh, we have developed a very fine grid-work, which does not allow fine particles such as aggregates and cement to pass through. Essentially, the fabric is made up of small pockets of concrete, which appear to blend seamlessly together. The mesh itself is made up of geotextile fabric rather than cotton. This type of fabric is strong and flexible and will support the weight of aggregate and cement while still retaining flexibility. In addition to this, it is not only inexpensive and widely available, but will also further strengthen the finished concrete formwork.



Plaster of paris bandaging



A 'simple' mesh of cotton

Inflatable concrete is intended to answer the crisis of slums and substandard housing worldwide. Not only must it be cheap and strong, but it must also be easy to erect and simple to understand. The process therefore, is very simple. Firstly, the inflatable 'unit' is delivered on site in its packaged form by means of plane or truck. It is then unfolded into place and hydrated using a hose. Finally, the structure is erected by inflating the inflatable via a small battery powered fan or foot pump and allowed to set and cure for twelve hours. Rather than setting up the inflatable and concrete fabric separately, as the illustrations may suggest, the inflatable is actually attached to the concrete fabric and retained as a waterproof PVC membrane once the structure has been erected. The only restraint on this technology is therefore the shape of the inflatable (or balloon).

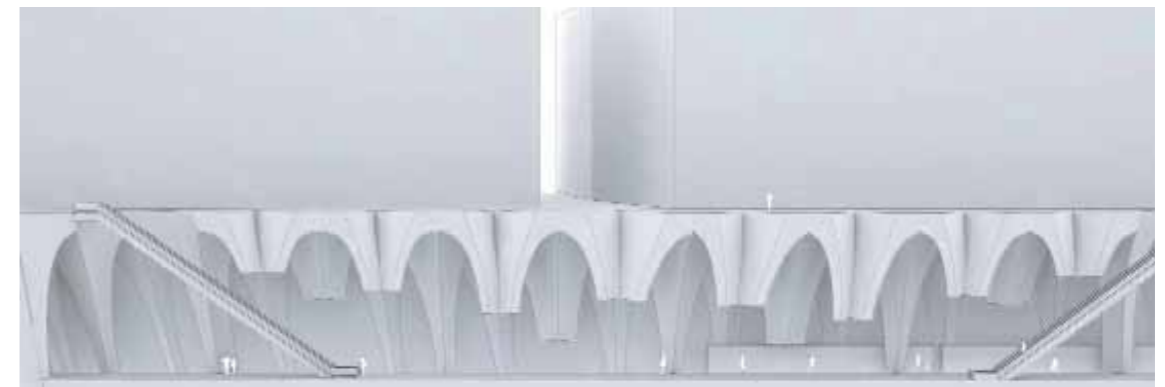
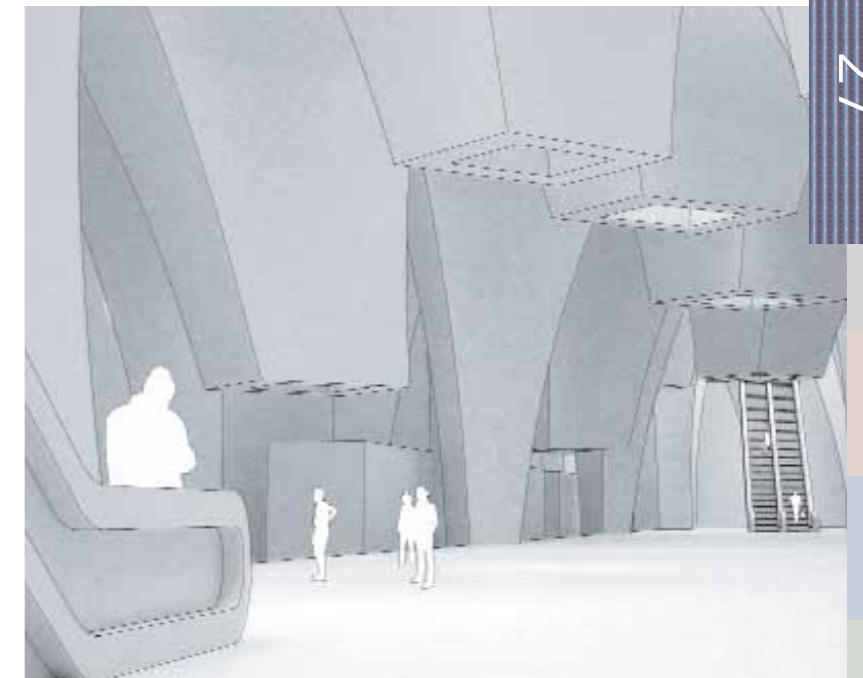


FX018

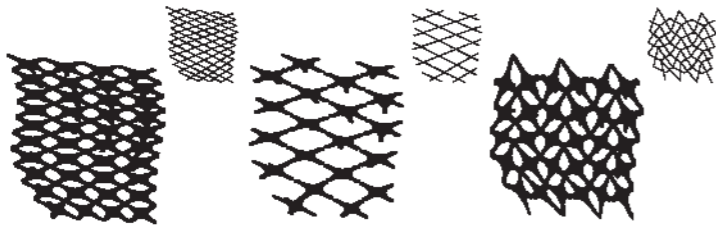
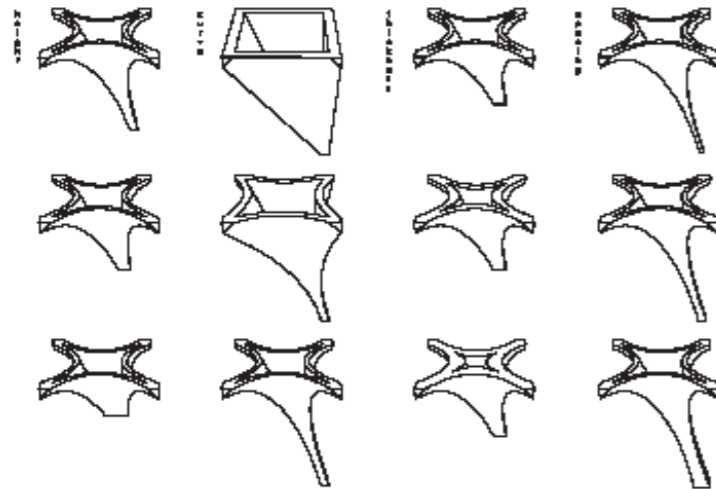
Underground station

Germany – Joint Winner

Felix Wurst – Leibniz Universität, Hannover



one level, and especially in the way the design combines ornamental and constructive elements as mutually complementary parts of a single heterogeneous solution. Of outstanding merit too is the way the realisation of the constructive solution is consistently based on full use of all the possibilities inherent in concrete. Even if the supporting structural approach in its blend of supporting and suspended elements is certainly daring, this design concept is well worth considering as a viable project to be built.'



[German National Jury] 'The "underground station" project shows the compelling use of experiments in space and light and their exemplary deployment in a design proposal for the HafenCity in Hamburg. The complex approach adapted to the theme of the competition is apparent from the creative analysis stage through to the conceptual design. Two small photos of an underground station in Moscow and the TWA terminal in New York explain the thrust of the project, which is to treat the inner space of public buildings as a spatial experience of distinction. The second track of the analysis develops the main design idea, the doubly curved module over which the project programme and project aims are outlined, giving final definition to the theme of the design.

The work first impresses through the clarity of its presentation, demonstrating as it does the complex interactions of reflection, experimentation and serial studies in modelling and drawing during the work process and how these lead to a compelling solution. Of particular interest is the playful use of parametric design methods. Thus in the exemplary realisation of a Hamburg underground station the focus is not on the actual module but rather on its spatial impact accentuated by the fall of natural light. This interpretation of the theme of the competition is impressive on more than

Current Living

Ireland – Honourable Mention

Darren Andrew Cameron – Queens, Belfast

Richard Andersen – Queens, Belfast

Scott Todd – Queens, Belfast

1. Adding electrically conductive elements to a regular concrete mix to achieve a conductive capacity to provide thermal and electrical properties. Harnessing the potential of concrete as a “skin” to be manipulated. i.e. In this case providing a thermal capacity, or applying current through it to create a light source.

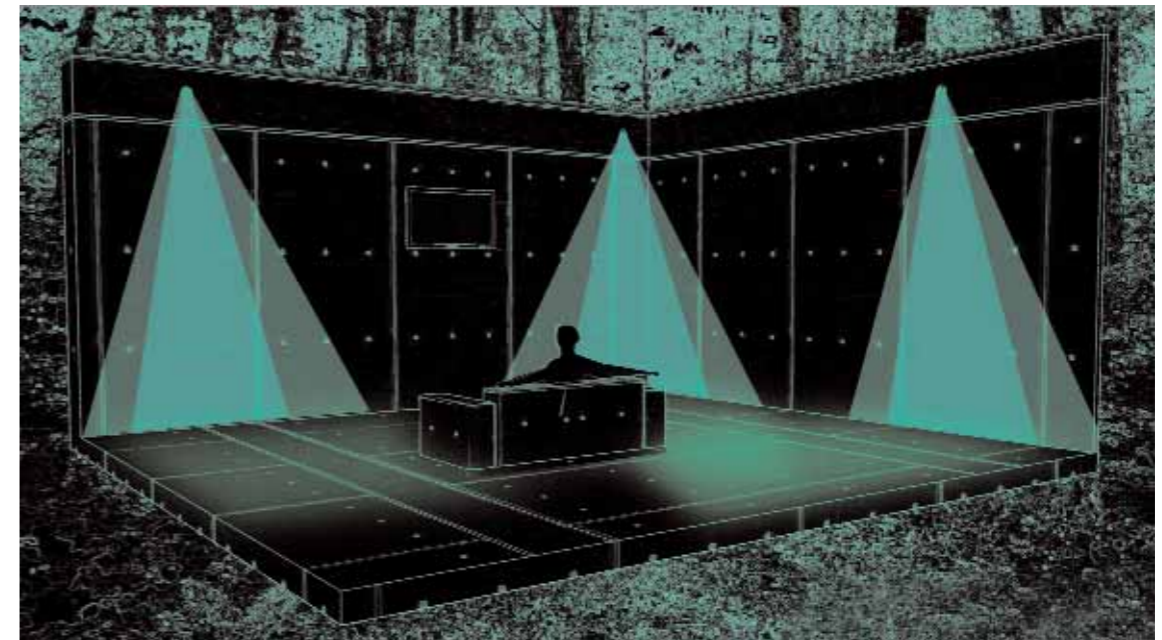
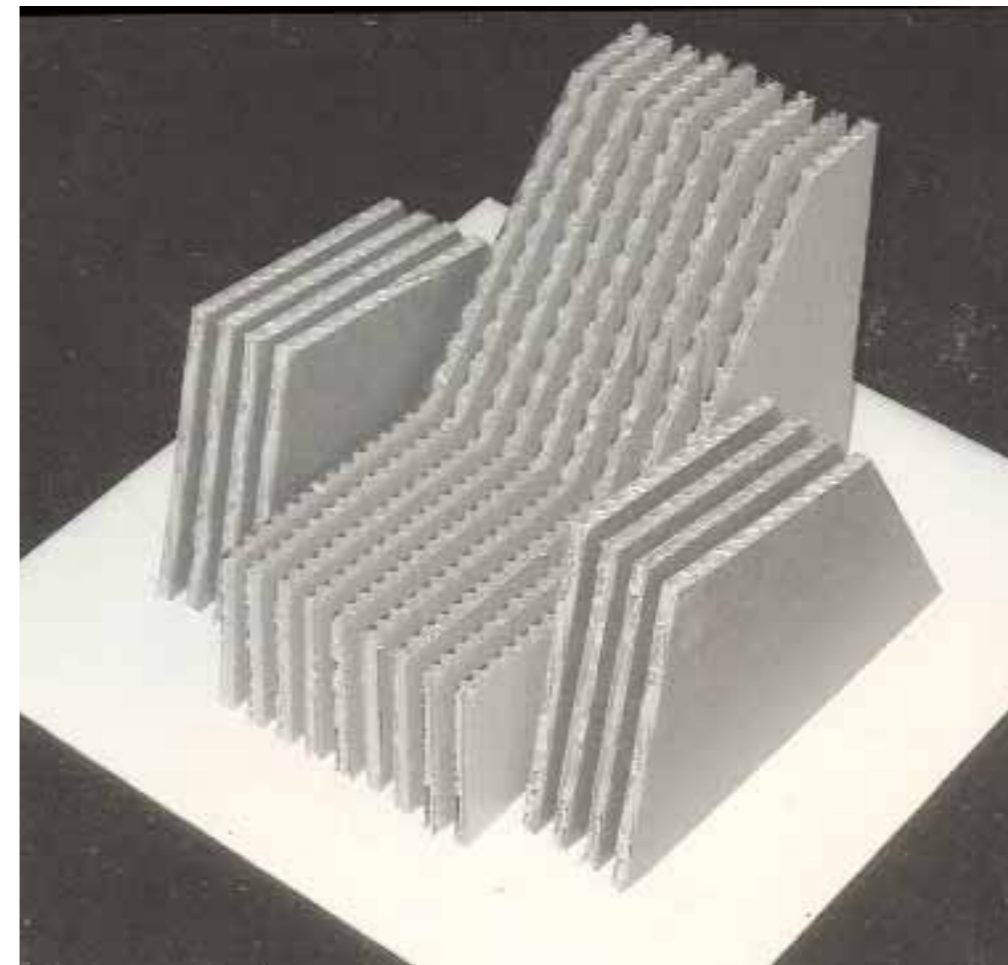
2. Possibility of the development of this technology to be harnessed in all new builds involving exposed concrete surfaces – the technology could remove the need for installation of separate under floor heating systems, externalised radiators and even wired light fittings.

3. Electrical conductivity can be embraced in the form of a thin layer used to provide adequate power for lighting systems, which would be introduced at the casting stage either pre-cast or in-situ. The mix may be different to provide thermal capacity, but this could be laid as a slab/screed to allow for heating benefit. The conductive concrete can be connected to mains power, and thus a reliable light source can be obtained.

4. The energy transmitted by free electrons travelling through the charged concrete is changed from kinetic energy to the form of thermal energy when it bombards the concrete molecules. This thermal energy is stored by the concrete mass and thus it heats any connected space by radiation/convection.

5. The inherent resistivity of concrete, which is an insulator in an unmodified dried state, is such that it may be possible to overcome this by providing a skim coat of plaster to the conductive surface, while still allowing for thermal energy to pass through.

6. The production of our hybrid adds no more to the embedded energy cost of the production of normal concrete, as the component added to provide conductive capacity is a waste by product of the steel manufacturing industry. Coke breeze is normally landfilled, and using it in this way provides opportunity to turn waste material into a new and exciting technology.



GO427

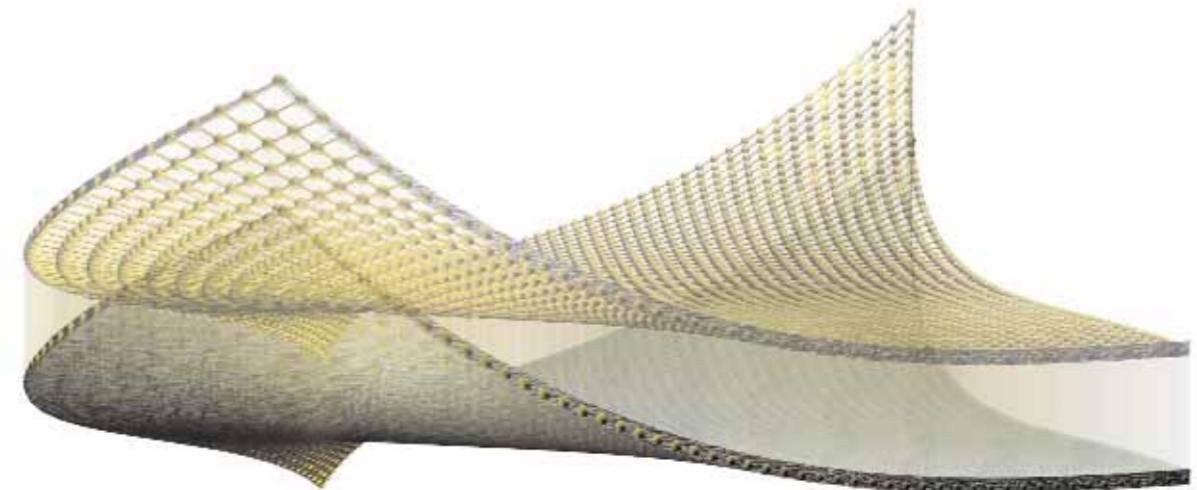
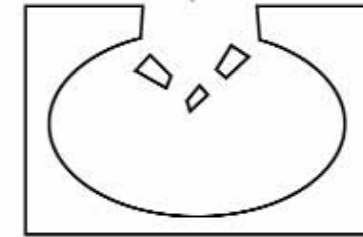
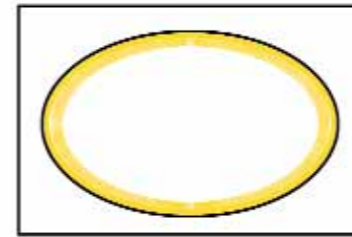
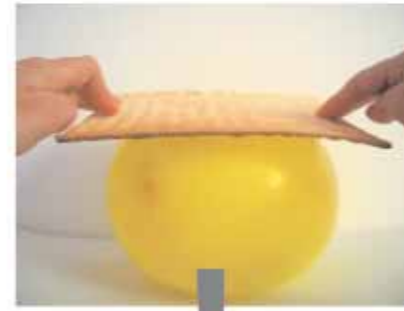
Gas Meets Concrete

Turkey – Joint winner

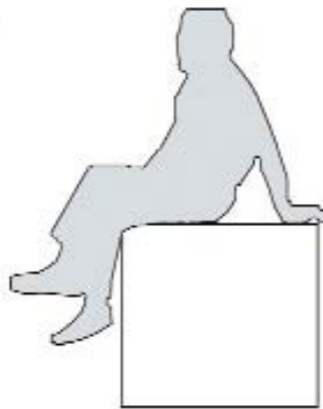
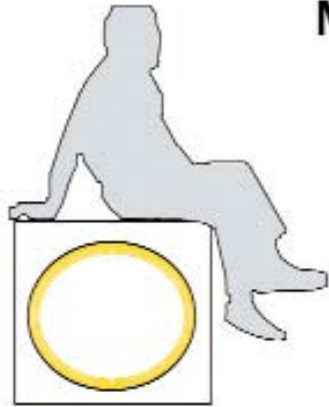
Ahmet Irfan Ertis – Istanbul Technical University
Emre Can Korkmaz – Istanbul Technical University
Zeynep Erdiñç – Istanbul Technical University

Gas behaves like solid under pressure. Solidity and protectivity of concrete meets the lightness and elasticity of gasses.

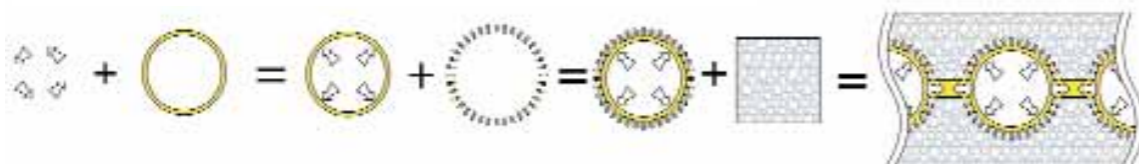
[Turkish National Jury] 'While lightening concrete, aiming to make it more durable from a structural point of view, the project titled GO427 suggested that concrete could be lighter, more durable, and floatable by injecting small air particles into it. This project "bringing gas together with concrete" has earned jury's praise for approaching performance through the perspective of resistance and hybridism.'



**WHY USE
MORE WHEN
WE CAN'T
TOUCH,
SEE OR
LIFT?**



**SOLIDITY
WITHOUT
EXCESS
WEIGHT**



GR275

Moiré

Netherlands – Honourable Mention

Gertjan Rohaan – Technical University Eindhoven

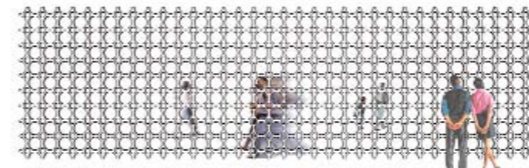
MOIRÉ tries to explore the possibilities of a pavilion in which the relationship between spaces are ever changing. The Leitmotiv for this concept is the application of the moiré effect on an architectural scale.

Originally, the term moiré was used to describe an effect applied to silk material to give it a wavy or rippled texture. Layers of silk were pressed together, which resulted in a cloth with alternating patterns that changed forms as the wearer moved. This effect of superimposing repetitive designs on top of each other produces patterns that are distinct from each of its components. The collection of layers becomes more than the sum total: their implicit qualities are made explicit.

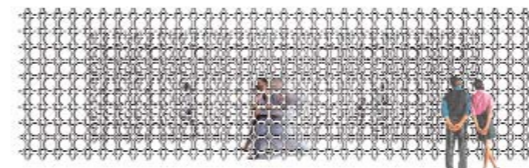
The pavilion is shaped by three rings of screens made from Ultra High Performance Concrete. This material allows the screens to be extremely thin structural elements with a very smooth surface. The screens form a complex barrier between the inner courtyard and its surroundings.

Its inner spaces are slowly uncovered, while at the same time the context is veiled with equal rate when one ventures through the pavilion. Instead of the silk cloth that is moved, it is now the movement of the observer that causes the relationship between screens to alter.

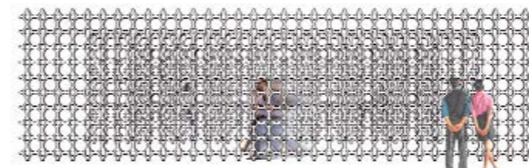
[Dutch National Jury] 'Moiré is not the only project in this competition that shows the architectural impact of perforated or translucent planes or walls made of ultra high strength concrete. Moiré stands out because of the shown contrast between the fragile looking concrete and its structural strength. This antagonism has enormous potential in architectonic respect. In spite of the charming fragile construction elements in daring combination with the heavily dimensioned roof plate, the layout of the pavilion does not appeal at all. For this reason Moiré is not a winner. The concept certainly deserves further research.'



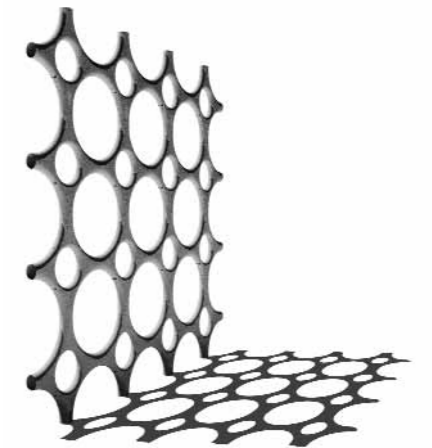
Screen study: 1 layer



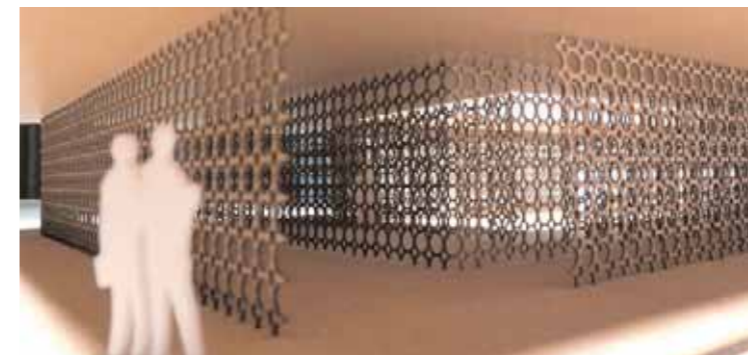
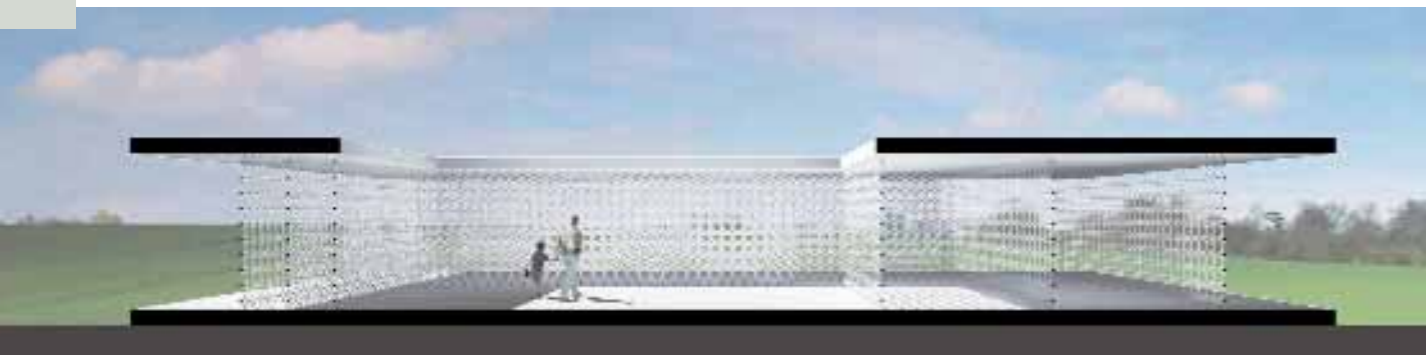
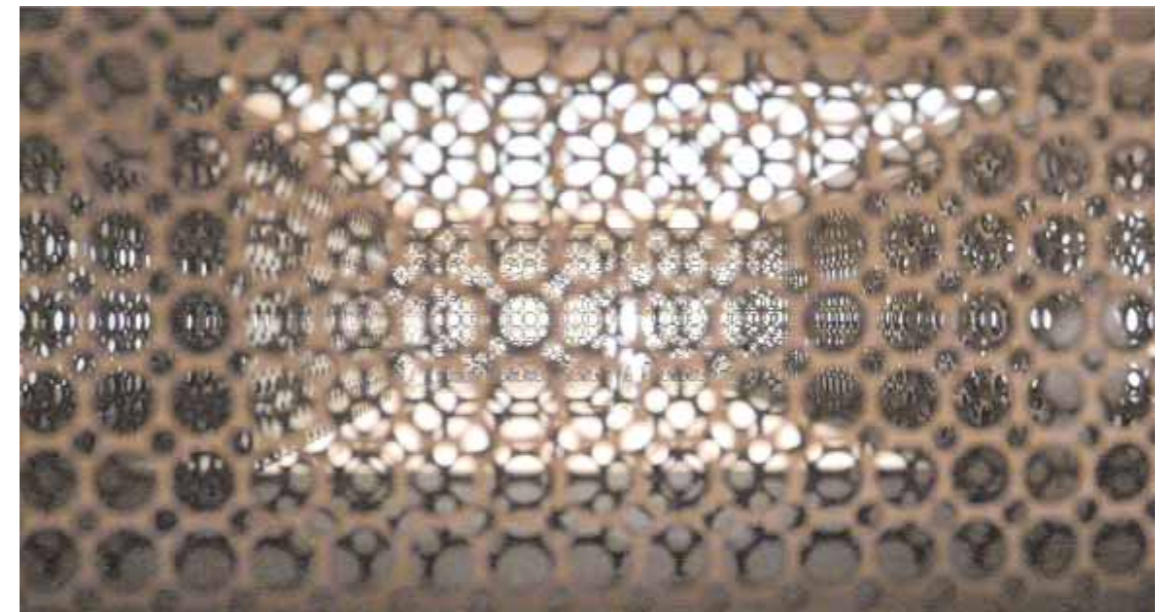
Screen study: 2 layers



Screen study: 3 layers



Detail UHPC screens



JY007

ComfortCapsule Concrete

Germany – Joint Winner

Juliane Greb – RWTH, Aachen
Yü Chen – RWTH, Aachen

Concrete, nowadays, combined with different kinds of materials and features appears to achieve any quality one can imagine; There is concrete glowing in the dark, concrete which one can see through, building components of concrete, plants can be raised on... Hence, even concrete's most obvious lack has been abolished. In concrete embedded Comfort Capsules make it an enjoyable and exciting surface for every interior room.

Comfort Capsule Concrete is designed to obtain the visual appearance of fair-faced concrete. Therefore it reacts to the alternating utilization of an interior room.

The Comfort Capsules, embedded into the surface area of the screed, respond to the heat a person's body on the floor pavement dispenses: they increase their volume so that a dense bubble carpet appears upon the concrete surface. This carpet is not only soft to lay and sit on, as it absorbs noise it also features as an acoustic benefit to the comfort in a room.

When it is not needed, the carpet automatically disappears in the screed so that one can enjoy the plain visual appearance of concrete.

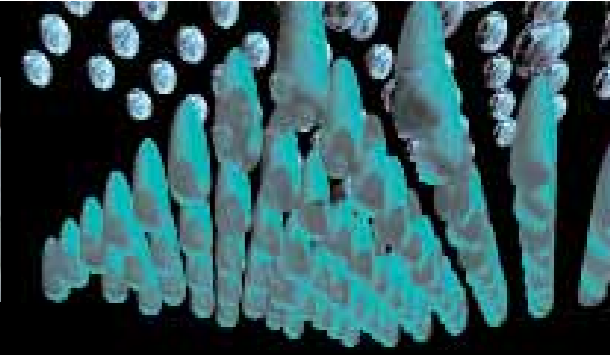
The thermo-dynamic actuation of the capsule does not need any other source of energy than the heat of the human body and works with an ecologically harmless and non-flammable chemical mixture.

The Comfort Capsule Concrete keeps concrete in the league of interior room's surfaces as it convinces at the level of comfort, flexibility and aesthetics.

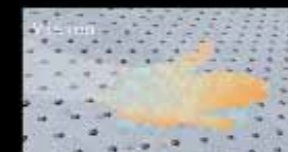
[German National Jury] "“Comfort-Capsule Concrete” is a futuristic work with a slight aura of science fiction about it. The point of departure for this entry is the stereotypically negative associations people have about surfaces of concrete on the inside of buildings which are generally seen as cold, bare and sound-reflecting. “ComfortCapsule Concrete” is an attempt to overcome such well-worn notions that makes exciting play with the sensuous qualities of concrete.

All the conceivable textural and physical qualities of concrete surfaces are extracted and examined to show the range of possibilities open to the material for application on the inside of buildings.

To achieve this goal a combination of concrete and synthetics has been used. A temperature-controlled transformation process enables synthetic elements integrated in the concrete surface to react dynamically to outside influences and effect positive changes in the quality of the surface.



In terms of its constructive realisation the project is both feasible and consistent. Issues of technical detail such as the actual time span of the distortion process or interaction of the compounds or the formation of cracks in the later added layer of concrete due to temperature deformation in the plastics together with issues of durability and robustness need investigation in further stages of the design cycle.



In short, however, the work is an exceptionally original and refreshing take on the theme of the hybrid. Of particular merit is the way it combines speculative technological innovation and functional added-value while also offering an outstanding quality of design.'



34

35

KO911

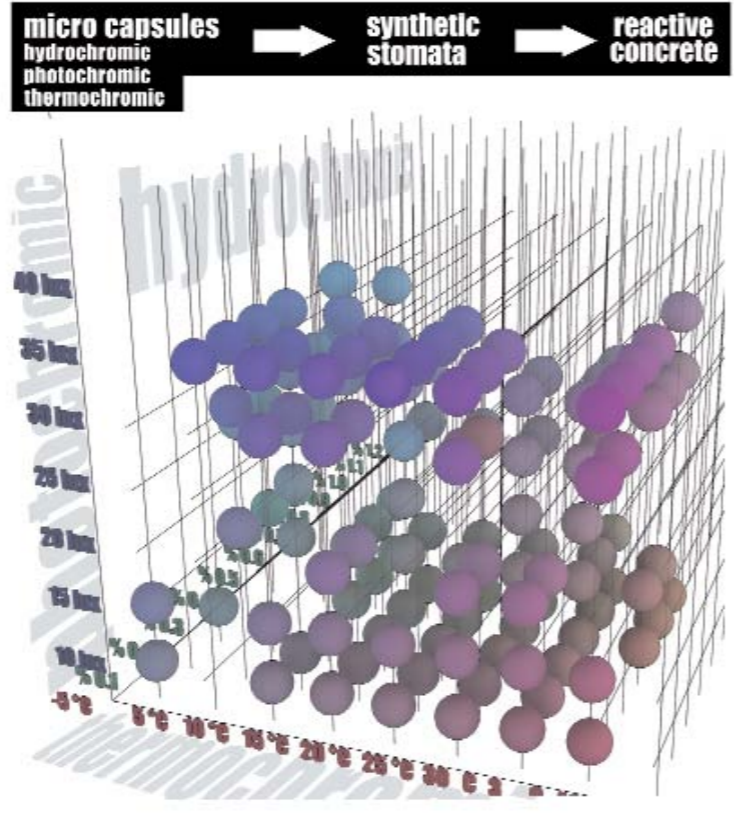
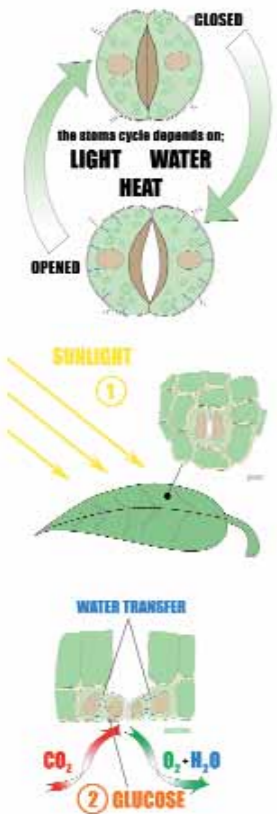
Reactive Concrete

Turkey – Joint Winner

Kadir Öztürk – Izmir Institute of Technology

A kind of concrete which reacts to changes in the weather in terms of temperature – hot or cold, moisture - arid or humid, and sunlight – sunny or cloudy. This new and reactive building material reflects external conditions by changing its colour and releasing different smells. These reactions are coded in synthetic stomata by chemicals. Incalculable changes in weather conditions bring multiple reactions on the concrete's surface at the same time. This live material reaction characterizes time, space and user by interactively engaging the senses, therefore strongly engraving the urban spatial experiences into memory. The synthetic stomata, a new ingredient to classical concrete mixture with cement, aggregates, sand and water.

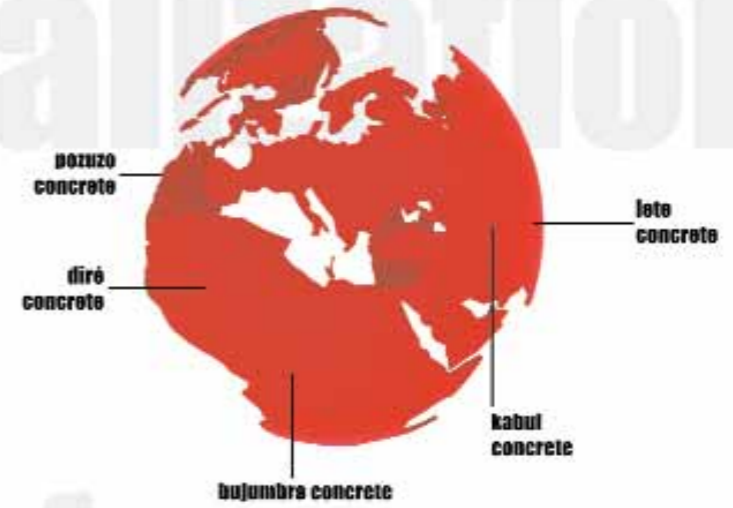
[Turkish National Jury] 'KO911 titled project focused on the properties of concrete material and was appreciated by the jury with its idea of "reactional concrete": transforming its appearance in different geographies and seasons, and the wall interacting with human acts.'



localization

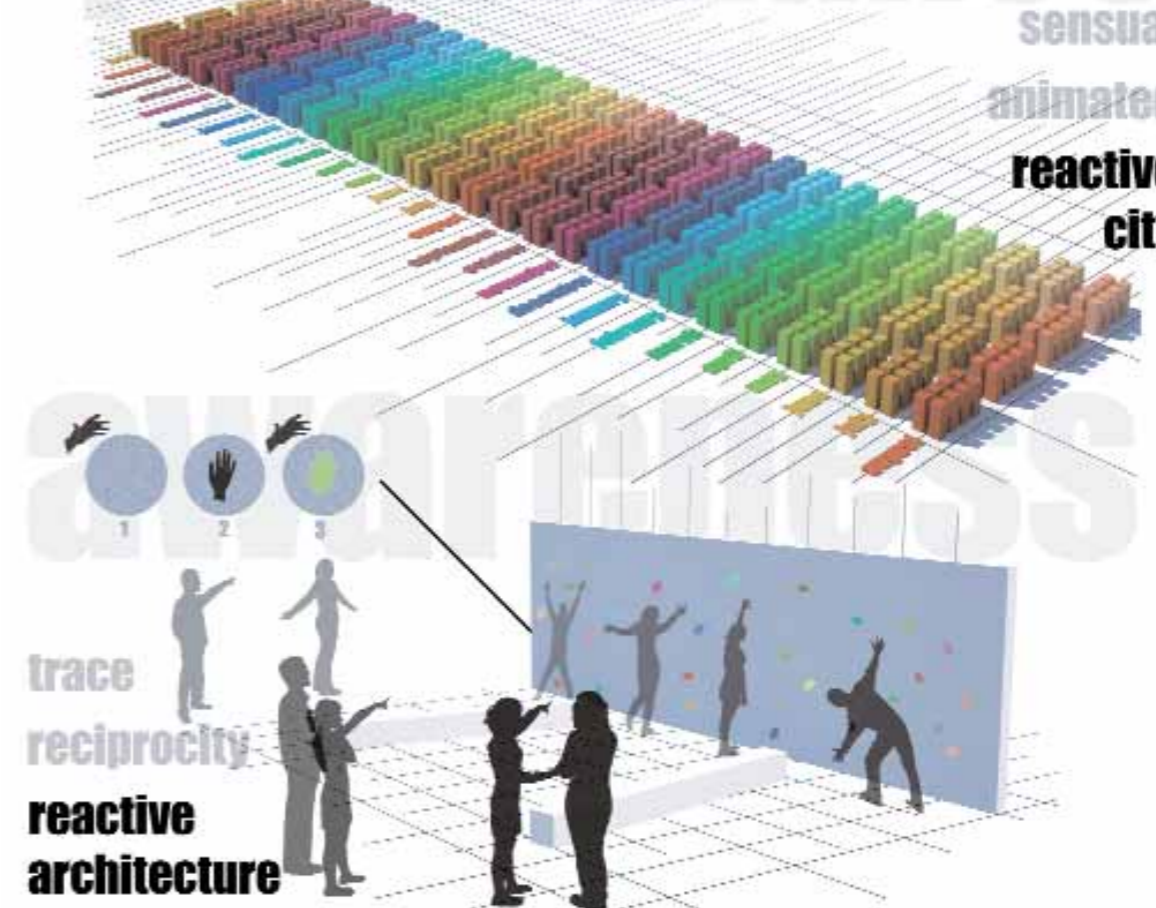
modifiable
differentiable

reactive
geography



performance

sensual
animated
reactive
city



KT215

Thermoscape

Germany – Joint Winner

Benedikt Krienen – RWTH, Aachen

Gereon Töpfer – RWTH, Aachen



In today's architecture – when constructing with concrete – organic shapes are generated that ask for innovative solutions of formwork. In combining different manufacturing processes, we created the concrete hybrid Thermoshape. Thus shiny concrete elements that are reinforced, jointless, and insulated can be produced. The 3D-curved shapes that are mostly computer constructed are brought into their precise form with help of a pneumatic formwork table. Using the deep drawing manufacturing technology each thermoplastic sandwich element receives its form by melting it.

The Thermoshape sandwich element is put together with a core of mineral rock wool for insulation, which is sewed together on both sides with a 3-dimensional meshwork as reinforcement. This complex fabric is composed of separating monofilaments to control the space between the surface and the reinforcing layer. Thermoplastic panels are cemented onto the sandwich structure.

The innovative thermoplastic skin replaces the ordinary wooden formwork and makes it possible to shape the sandwich element in only a few minutes. It also guarantees a shiny and perfect surface of each concrete element.

After the Thermoshape sandwich elements are prefabricated, the light pieces can be easily positioned at the construction site. In the next production step one element is welded to the next one and the whole wall can be filled with concrete.

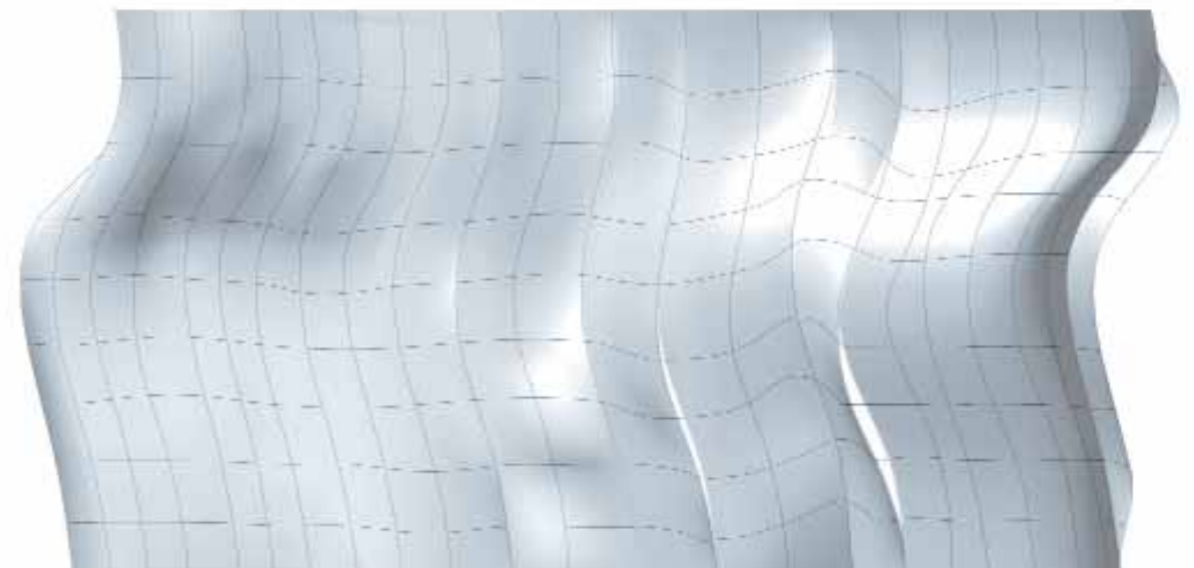
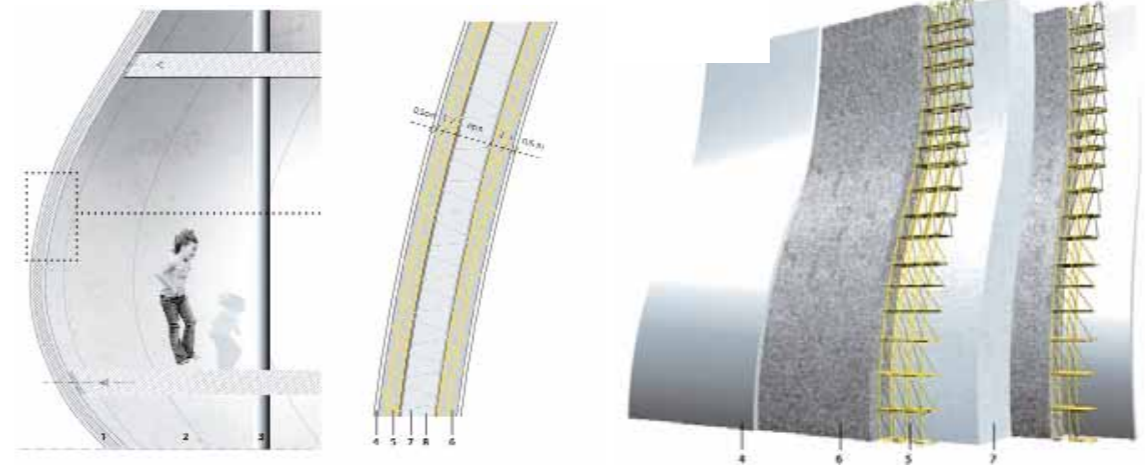
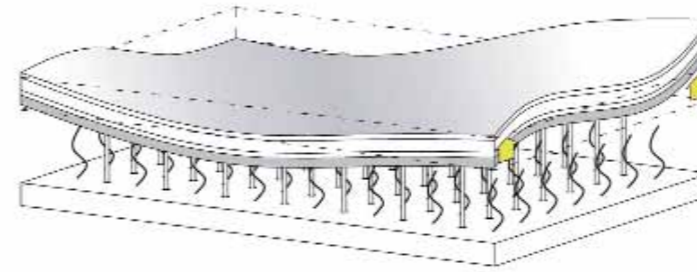
When the concrete has hardened, the thermoplastic skins have fulfilled their task. They are removed and will be recycled for the next element. The newly erected building now displays a shiny and jointless concrete façade.



[German National Jury] 'This entry for the competition is a creative response to a critical issue in modern concrete construction – how to produce freely formed double curved concrete elements (such as those used for the building shell).

This theme shows masterful development both in the conceptual and modelling stages. Of outstanding merit is the division of the industrial production of a sandwich element into factory-based formwork, reinforcement and insulation, and on the spot grouting of large-scale elements on the actual construction site. This brings us much closer to the use of computer-controlled realisation of complex geometries for concrete engineering, even if much more research is needed before we can develop viable practical solutions. The concept makes meaningful use of state-of-the-art technologies both in terms of building materials and construction methods and in terms of actual production processes.

At the same time, in harmony with the theme of the competition, both the creative process and the final results make exact use of the characteristics of a variety of base materials to arrive at the definite solution. Thus the work represents an important contribution to discussion of the on-going development of concrete constructions, even if the manner of building in concrete



developed so far means that concrete is not suitable for any further structural roles beyond that of its self-supporting qualities.

The presentation of the idea is also excellent and readily understandable with the diagram-like comics offering a particularly welcome departure from traditional forms of representation.'

LK111

Optical Fiber Concrete

Germany – Honourable Mention

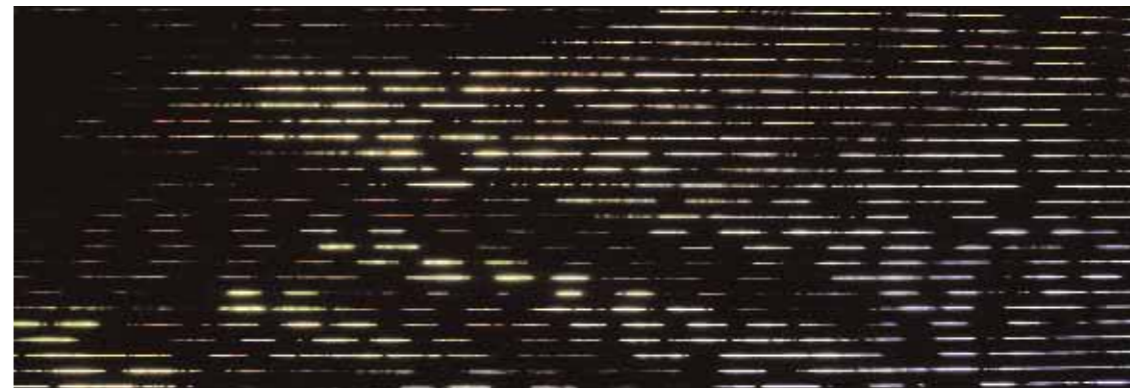
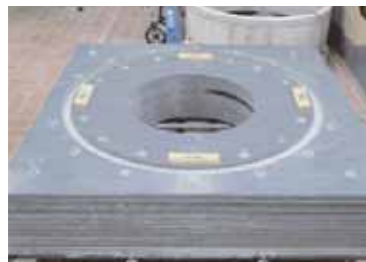
Lukas Kasten – Universität Kassel

Based on research of optical-fibre-concrete on curved surface, which was done during a seminar in the architectural faculty of the university of Kassel in the semester of 2006/07, the sculpture of light was designed to be built for the project "Sign of Walbeck".

This project was guided by Prof. Dipl. Ing. Brigitte Hännson from the department of design and construction in architectural faculty of the University of Kassel.

The sculpture of light was designed as a cylindrical object set in a room of remembrance following a circle-like deepening in the floor. The aim of this construction process is to create an optical-fibre-concrete with curved surface showing characteristics of exposed concrete.

[German National Jury] 'This work takes the model of a light sculpture design as the basis for the production of curved concrete surfaces endowed with optical fibres. To this end it has conceived and developed a special formwork system through to the realisation of a prototype. The result is a sculpture of space and light of outstanding sensual and aesthetic quality. The masterful quality of its realisation was singled out for special praise. However, the project's reliance on existing technologies for light-permeable concrete also raised doubts as to the originality of the project in terms of the theme of the competition. Even so, the work still represents a major contribution to discussions around the theme of the hybrid, while its combination of materials and their given realisation does indeed open up the way to new original solutions for applications of concrete.'



mosscrete

Ireland – Second Prize

Lucy Riordan - DIT

With this project I aim to investigate the synergy of artificial built forms and natural resources. The moss relies on the porosity of concrete to gain and store the water it requires to complete its life cycle. Equally, a unique aesthetic effect is generated through the dichotomy of the combination.

This project seeks to exploit the age-old knowledge of society in a modern way. The placement of well-known moss accelerants of buttermilk, beer and sugar and natural yoghurt has been explored through both the traditional methods and innovation.

The traditional use is by placing the mix on the surface of a pre-existing element. Although it did increase the curing times, this proved the most effective and efficient.

By pre-placing the mixes I aimed to enable greater control over the accuracy and complexity of the patterns created, much as in the creation of photoengraved concrete; this proved impossible given the consistency of the mixes.

Finally I attempted to use a mesh cloth to secure the mixes in position while having no adverse effect on curing times, the surface finish of the concrete was changed considerably. The increased texturisation of the surface could enable greater water collection and enhance the growth of the moss.

[Irish National Jury] 'Mosscrete is an investigation into the live aspects of concrete and in particular the possibility of exploiting its constituent elements such as lime in forming a living organic material that develops and grows over time. The entry is conceptually very strong and applies first stage of research and analysis on how the organic material could be developed in concrete. The entry also investigates the use of acidic substances such as yoghurts in concrete mixes which would assist in the cultivation of moss. The Jury was also mindful of the possibility of the use of coarse aggregate porous concrete which could assist the in the retention and development of moss on a concrete surface in an external environment. Moss as a material thrives in damp low light conditions and while in western cultures is regarded as a weed it is highly regarded in other cultures such as in Japanese gardens as bringing a calm or stillness to a scene. While this aspect of the material was not noted in the submission the Jury was impressed with the possibilities of developing a new concrete aesthetic through such a living material and the research that demonstrated this potential permeated through the minds of the Jury and led to much discussion throughout the assessment. It was felt that while the potential of the idea was not fully developed in the entry submission the original research and concept was deserving of high merit.'



MR198

Reverse Effect

Italy – Joint Winner

Alper Kanyilmaz – Politecnico Architettura, Milano & Lecco
Ayse Bozkurt – Politecnico Architettura, Milano & Lecco
Fatma Aliosman – Politecnico Architettura, Milano & Lecco
Tolga Tutar – Politecnico Architettura, Milano & Lecco

The project suggests a particular solution for an alternative life on the water, emphasizing the advantages of the concrete, reinforced with steel fibres. This composition provides the opportunity to construct a floating structure, which differs from the traditional systems in terms of its homogeneity, flexibility and the ease of production. As a whole, the project is questioning the limits of the concrete and suggests a whole new water-based urban quarters.

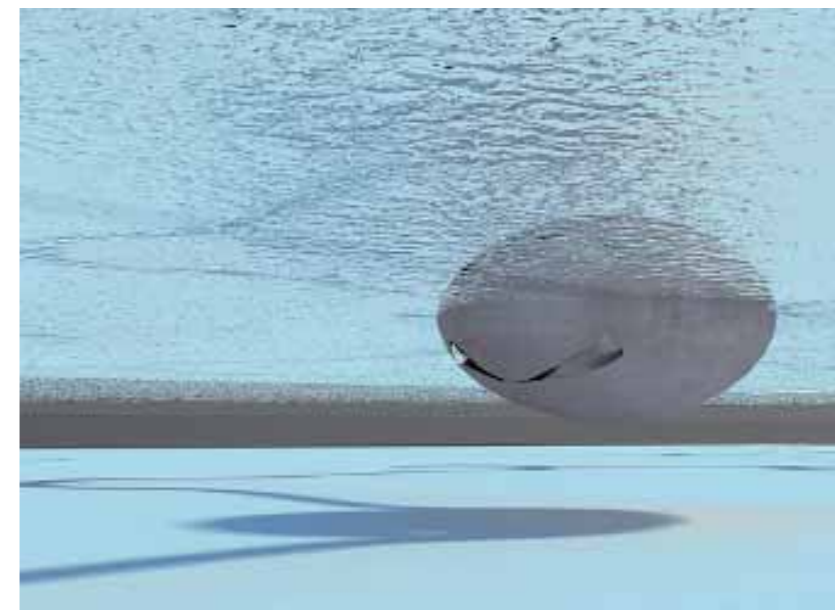
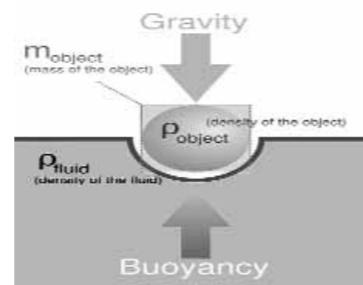
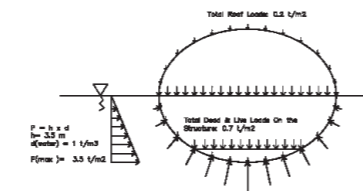
The floating houses neither require earth nor touching on the vegetation. The structure, taking advantage of buoyancy and the uniform bearing pressure of the water eliminates the need for a foundation structure.

The steel fibres inside the concrete, lowering the permeability against water, lets the structure have a longer life time without the need for extra water protection. Even if some fibres close to the surface are corroded, due to their scattered and independent state, the strength of the structural element is not affected significantly. Besides, galvanizing the fibres or the using stainless fibres easily eliminates the risk of corrosion in the structure.

The uniform water pressure, which increases to the base of the structure, utilizes the dome geometry to decrease tensile forces in the dome, resolving them to the compressive forces, which can be well borne by concrete itself. The reduced amount of tensile forces can be resisted by fibres reinforcements in the concrete.

The structure exists out of three main precast elements. The top dome, the slab and the bottom dome. A normal capacity crane can immediately start their life on the water, just after the elements are mounted at the site. Anytime during their lifetime they can be disassembled and rebuilt somewhere else, or simply sailed to another place.

[Italian National Jury] 'MR198 "Reverse Effect" awarded for the application of the "hybrid" concept both to the system and to the material. The project, rich in inventiveness and imagination, envisages a system of floating elements usable for a city on the water that uses the thrust of the fluid as construction component. In addition, the concept of hybrid for the material consists in proposing the use of a metal-fibre-reinforced concrete.'



MS225

Möbius Stage

Norway / Sweden –
Honourable Mention

Albin Holmgren – Chalmers, Göteborg
Joakim Haglund – Chalmers, Göteborg
Ullrica Johansson – Chalmers, Göteborg

The aim of this exploratory project is to present a stage for spontaneous performances – quiet as well as lively, static or dynamic. Just as the Möbius strip with its single never ending surface provide for infinite moments Möbius Stage provides a platform where countless possible actions, encounters and experiences can take place.

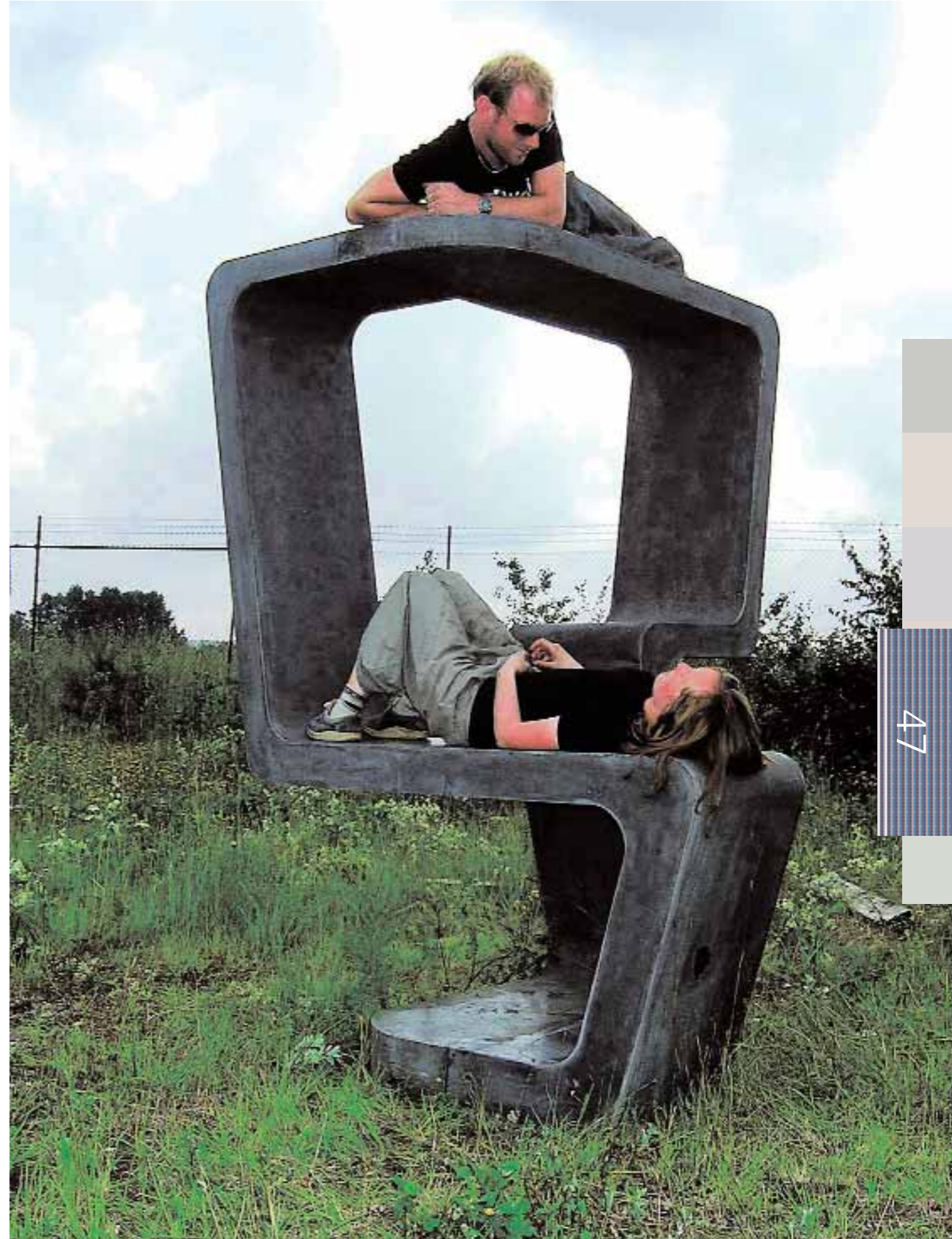
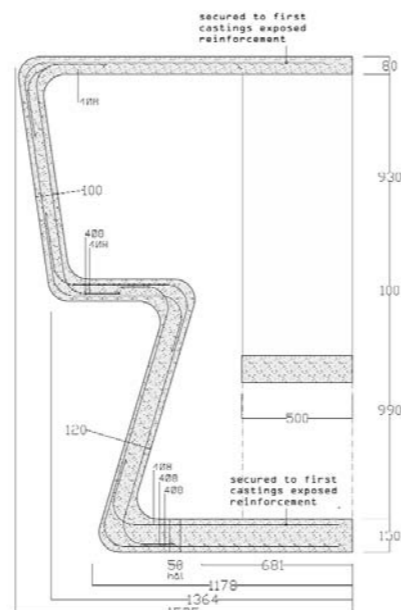
The project is not specific to a certain place. Möbius Stage is in itself a whole range of implicit spaces. Its twists and turns will be part of the surroundings, whatever they may be, and engage in dialogue with the environment and people around it. As such it is both a public space and a protected, private, place.

An inherent property of a Möbius strip is the breakdown of customary concepts such as inside/outside and front/back. Möbius Stage questions those dichotomies – what appears to be outside will in the next moment be inside.



[Norwegian-Swedish National Jury]

'The entry entitled Möbius Stage stands out with a striking form, which the jury would like to see developed in its design. Its connection to the theme of the competition is thought to be weak, however. The jury rates the ambition to work at full scale highly, but the presentation lacks an explanation of how the mould is produced and how the sculpture is casted.'



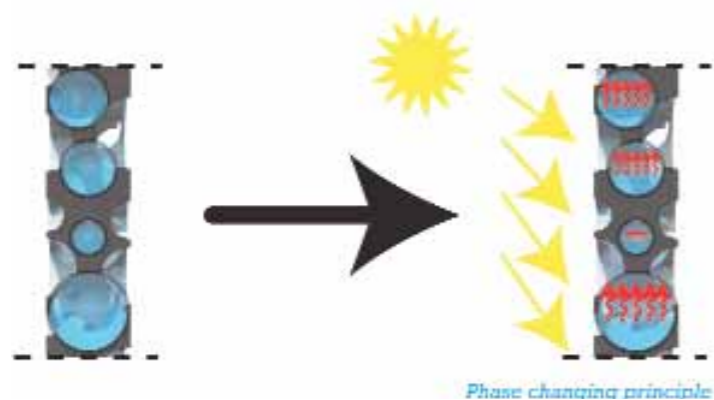
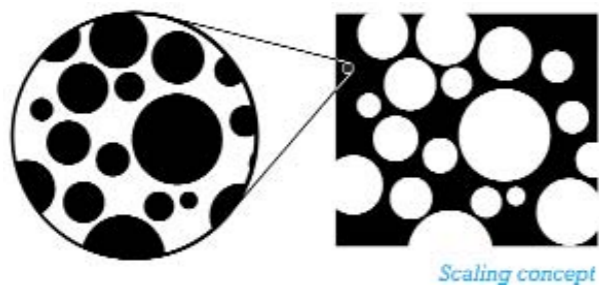
NL154

Sense of Scale

Netherlands – Joint Winner

Gertjan Rohaan – Technical University Eindhoven
Karmen de Maaré – Technical University Eindhoven
Rikje Maas – Technical University Eindhoven

In Sense of Scale the microstructure of Ultra High Performance Concrete is scaled in such a way that an architectonic wall is created. The optimization of the material matrix guarantees a very strong structure, which makes it possible to use the concrete in slender designs. Extremely porous structures can be made, without losing load-bearing capacities. The wall forms a tactile and complex three-dimensional veil and creates an ambivalent relation between spaces: concealing and revealing while retaining a physical connection. By enlarging the concrete microstructure not just its characteristics remain, but also new qualities arise: the implicit structure becomes explicit.



[Dutch National Jury] 'Sense of Scale is the somewhat misleading title - according to the jury - of a project that has multiple qualities and fits most of the criteria. The project explores the aesthetic, thermal and structural qualities of ultra high strength concrete (hsc) and the architectural impact of working with elements with a relatively large-scale spongy texture. It is the extensive research shown in the presentation, the search for an integrated or combined quality of building technology, physics and architecture that appeals to the jury. Although the apparition of the chosen texture is not new (a.o. Koolhaas has worked with similar elements), this project is more than 'just a pretty element' because of the research in the field of energy saving solutions and integrated design. The jury speaks of a "brave experiment with some rough edges", has small doubts about the sustainability of the plastic globules but is overall enthusiastic about the way the project is presented. Less but stronger material, more surface thus better accumulation of energy and a strong architectural presence combined in one element: a true winner!'



00717

Conkevlar

Belgium – Honourable Mention

Hans Ooms – PHL Architectuur, Diepenbeek

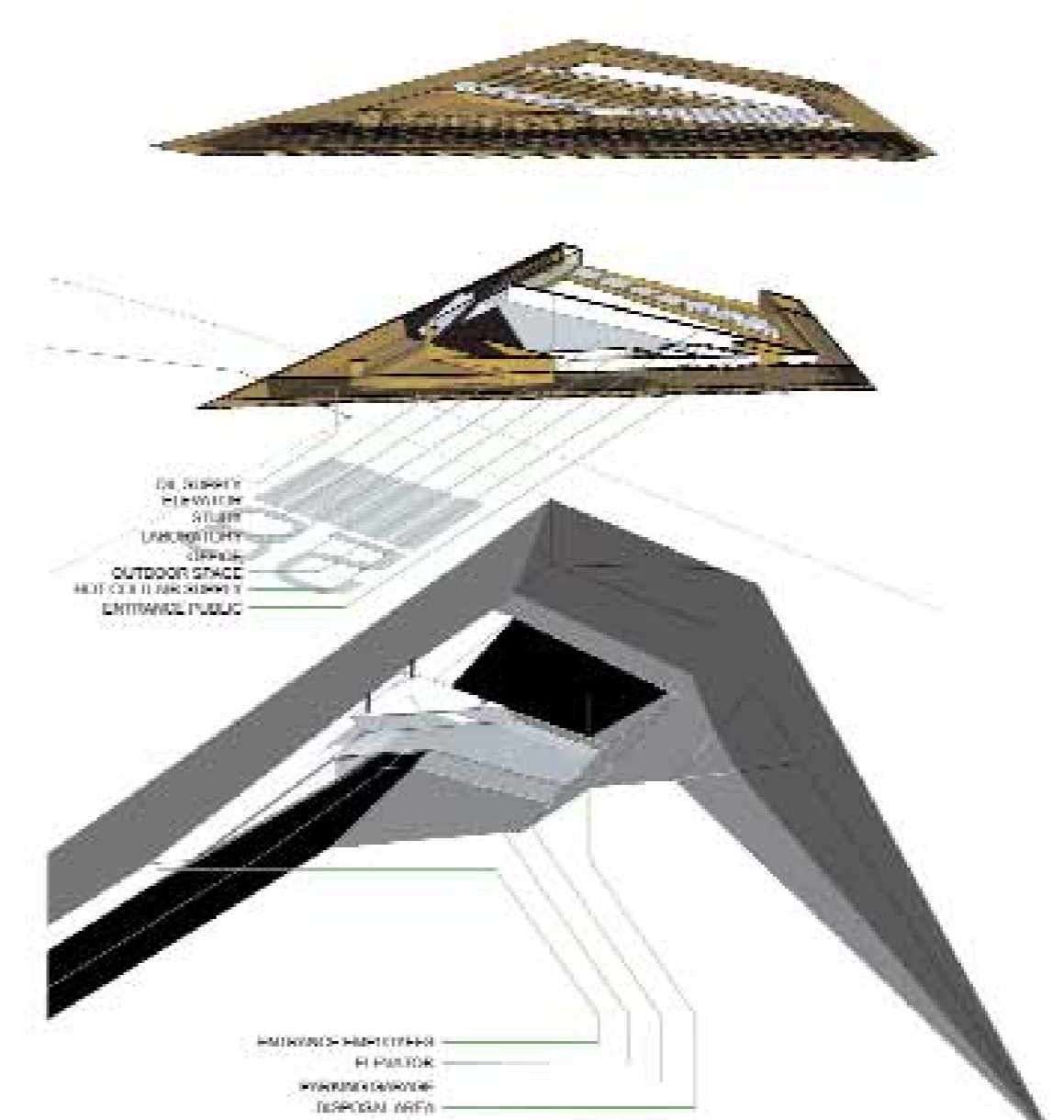
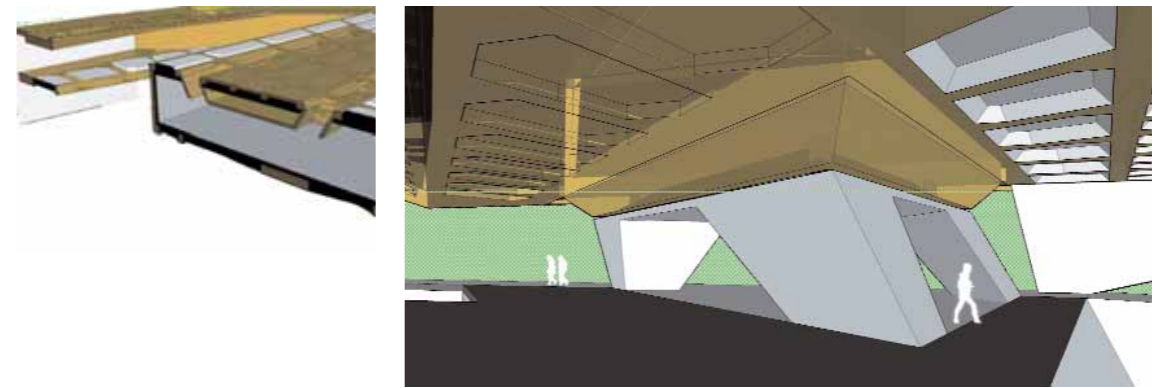
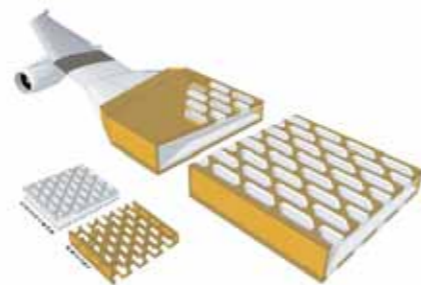
We live in a disposal society that we are accustomed to, and self-evident we carry on living in it. Worldwide our human behaviour is exhausting all raw materials. The car and industrial sector are seen as the number one environmental polluters. Hereby they encounter a great social pressure to have a green image. The development of hybrid cars and reduction of CO₂ emissions are an example of it. But people do not take notion to the fact, that when we pour a concrete construction, thousands of kilos of steel are processed. A raw material that shrinks with the years.

Steel is an elegant and formative material, which we perhaps better put to use for visible constructions, instead of indefinitely hiding it in a coat of concrete. Is there no alternative way to produce reinforced concrete? A material that we can combine with concrete like we do in steel reinforced structures. A material, which also encounters the well-known error of concrete: the possibility to endorse a pulling tension.

Conkevlar. It is a fibre structure that possesses the properties to make the combination of concrete and Kevlar stable. And even more, kevlar can endorse an even greater tension than steel. The spans we can produce with this system have never been seen. All this from an ecological point of view.

Conkevlar has been inspired by the aviation industry. The skin of a plane wing is built out of a number of very thin layers. All these layers have a specific function: stability, waterproof, force, etc. This structure of layers has been translated to a double laminated system: conkevlar.

[Belgian National Jury] 'This entry is to be situated in the same register as PP 413, trying to adjust architectural thought to technological development. 'Conkevlar' being a laminated system of concrete and Kevlar fibre allows for the fabrication of thin structural shells. The project takes inspiration in aeronautic design (the aircraft wing) to elaborate a proposal based on tubular wide span structures out of this conkevlar. However, the architectural proposal is quite vague and rather loosely related to the engaged technology.'



Organic concrete

Belgium – Joint Winner

Wouter Dreessen – PHL Architectuur, Diepenbeek



Concrete is both an interesting interior and exterior material. So I tried to think of concrete as a material both useful for the outside of a construction as well as the inside. Also it can be used for the construction of the walls as well as the roof. So this could result in an unusual form language if we try to play a little bit with the boundaries between inside-outside, vertical-horizontal and culture-nature. The concrete must not only try to contain culture but also embrace nature. As a material, it must therefore not only be used to keep nature (within) and culture (outside), but also seem to incorporate nature and contain it.

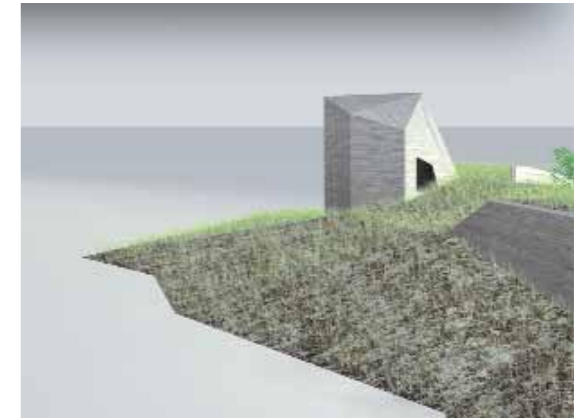
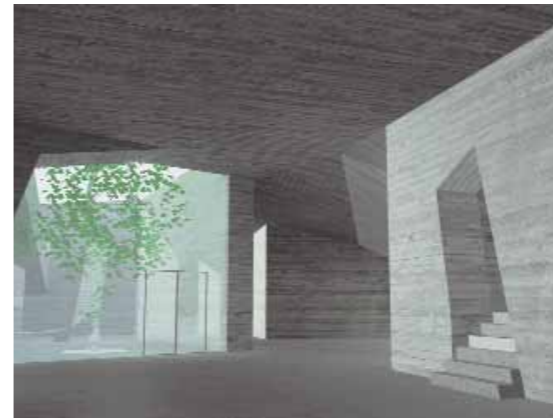
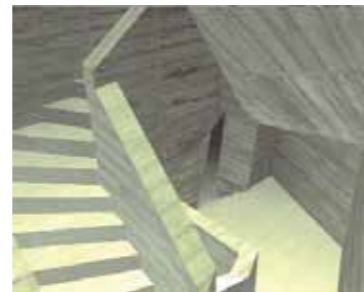
Considering the qualities of organic concrete, can concrete be a permeable material at building-level, in other words, can it seem as if the building will absorb the surroundings and incorporate it into itself?

It must become a place of another kind of architectural perception. This must show in the architecture by means of the circulation, the voids, subtle passages (mutations of patios and terraces), only creating public spaces that don't seem visually separated and invite to circulate in the building.

Therefore we must try not to fall back to the stereotypes of chambers and separations but perceive the building more like the basic principle and essence of all houses, a 'cave'.

Surfing on the internet, I found an article about "organic concrete", that can retain a certain amount of humidity. Moss and plants can grow on this concrete using this retained water in dry periods. So I let this inspire me for the assignment considering its 'hybrid aspects'.

[Belgian National Jury] 'The entry is based upon the recent development of so-called organic concrete, a product engineered with the purpose to retain water. Because of its property to release humidity gradually it can provide for a proper substrate for organic growth. The entry focuses on the architectural implications conveyed by the very existence of this material. Sharp distinctions between the natural and the fabricated are brought out of balance. The project is conceived as an enclosing landscape. By choosing for a cave-like spatiality, it pretends to challenge the reliance of architecture on geometric principles and its propensity to spell this out through tectonics.'



RA493

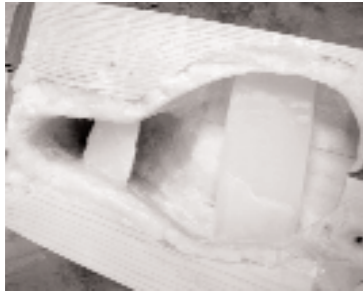
Wearable Concrete

Ireland – First Prize

Roisin Aherne – UCD, Dublin

Durability with an edge, concrete has been fashionable in almost all the design disciplines since its beginnings. A hybrid of foam and glass fibre reinforced concrete can take concrete to a place it has not been before – onto the human form.

Concrete's inherent plasticity lends itself both to mass production and intricate detailing, and hence to fashion.



[Irish National Jury] 'Wearable Concrete is a proposal for concrete shoes which is developed through the use of concrete and soft 'aero beads' to develop a lightweight material that is capable of being moulded and shaped to suit any shape and function such as an handcrafted shoe for an individual foot. A mould is developed to suit the particular foot and the product is then further developed through the integration of wax elements into the mould for the shoe which is then melted to allow for the later fixing of a simple leather shoe strap. The proposal is developed practically and photographs of the modelled shoe as worn are included which demonstrate the aesthetic qualities of the design proposal and its practical application. It was noted that the proposal was well presented and demonstrated a refinement of the original idea together with practical research application of additional lighter materials to achieve a lightweight solution. The Jury noted that the process of solving the many practical problems of associated with the development of a concrete shoe demonstrated the potential of the idea in providing solutions for new uses and performance of concrete.'



RL384

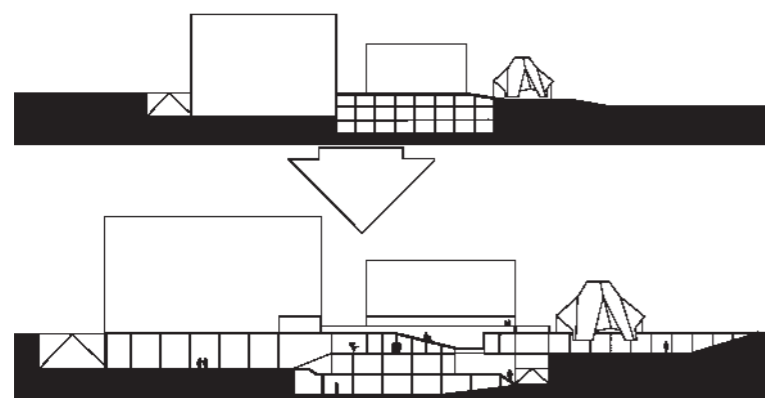
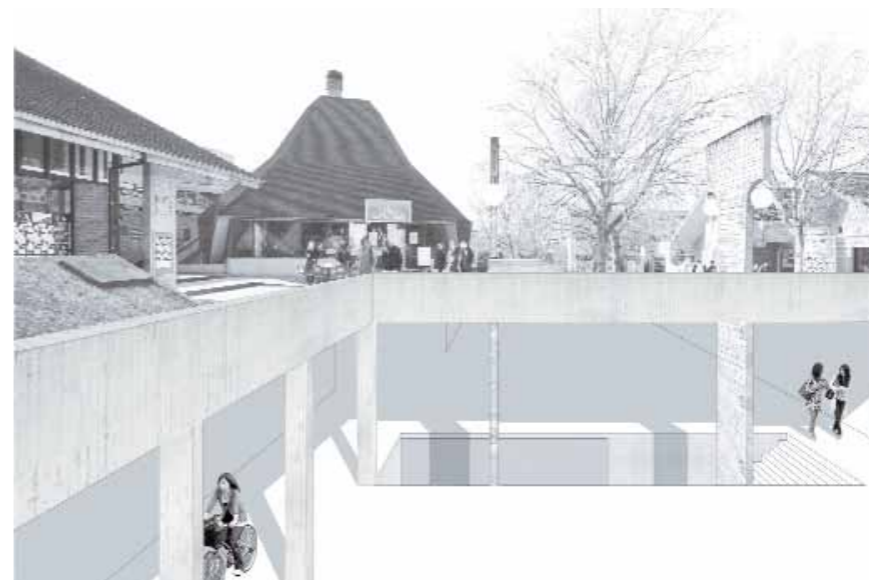
Mom when it rots, can we dig it up and see the bones?

Belgium – Joint Winner

Radim Louda – ISACF La Cambre, Brussels

The concrete building has achieved its peak before 1973. The economical crisis linked to the oil shock had as result to slow the ardour of the designer. From this point of view the Place des Sciences of Louvain-la-Neuve may be considered as the last monument to express this single formal liberty in history. From this point, our intervention aim is to express this performance, implicitly present in the building. The Place des Sciences represents a historical issue, considering the scale of this young city. Indeed, the Library of Science is the first building in Louvain-la-Neuve. It owns a monumental and historical character, which has to be considered. Our proposal considers the question of the extension from a specific angle: in this case, we propose to act more by subtraction than by addition. In concrete terms, we offer to work on the subsoil, which permits us to put in evidence the more primitive structure of the place. Moreover, we search to explore this ambiguity, which can be created, between a building which we monumentalize (almost literally), and on which, all at once, we perform violent acts, close to scarification. By creating a confrontation between those two dimensions, we expose the true potential of the building. Indeed, we see the implicit performance as the identification, the reconsideration and sublimation of the already present forces.

[Belgian National Jury] 'This project is an intervention on the site of the 'Place des Sciences' in Louvain-la-Neuve. The Library, the first building on site, plainly erected in bare concrete, is considered as being one of the last convincing representatives of an architecture celebrating devotion to design. The argument is put forward that the existing square doesn't match up to this historical status and monumental quality. The project superimposes an additional figure to the building configuration around the square. The ordered pattern of the underground structures are dug out, exposed and worked out to redefine them as the common base to the buildings. The informal square is thus replaced by a cloister court, a strong figure reuniting the scattered edifices and bringing up implicit monumentality into physical presence.'



RR603

Rotating Concrete

Netherlands – Honourable Mention

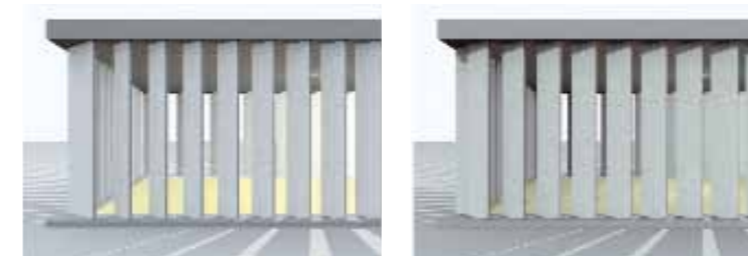
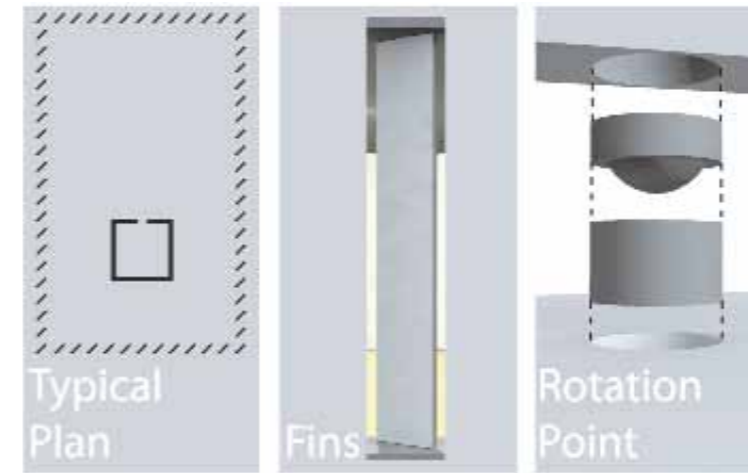
Wouter Notenbomer – Technical University Delft

Normally, concrete is used as a load bearing system in columns or walls. This system is static and load bearing is its only function. To make more use of the load bearing system it can be combined with another function. This other function is a solar system. Rotating concrete combines these two systems. Shaped as a vertical plate of 1,5 m wide and 10 m long. The type of concrete used for the plate is C25.

The rotation point is made out of a bowl shaped element which can turn in its counter shaped element. Due to the heavy friction in the rotation point, concrete type C800 is necessary. To make the friction less, oil will be used between the two elements.

Using rotating concrete, the building doesn't have any stability. Therefore it is necessary to use a concrete core, which provides stability by connections via the roof.

[Dutch National Jury] 'Rotating Concrete generates different appearances of the façade with floor high vertical rotating wings. The system also anticipates on changing climatic requirements of the façade. Using concrete creates a "dramatic" complexity in the structural system, although ultra high strength concrete at the rotation points will ensure a long lasting performance. By stiffening a select number of joints the construction as a whole will be stable and even applicable for multi-storey buildings. The jury appreciates the design but stretches that it is also the weakness of the project: the characteristic appearance will withhold other architects to use the structural/mechanical principal. To justify the amount of research into the structural and mechanical conditions of the system, the jury emphasizes the need to research the system on its architectural merits.'



SC794

Singing Concrete

Netherlands – Honourable Mention

Thorsten Schneider – Technical University Eindhoven



Concrete in general is known for its robustness, its capacity to bear heavy loads, its mass. But how would it be if concrete had a voice, if it could sing with the wind or even be played as an instrument by human touch?

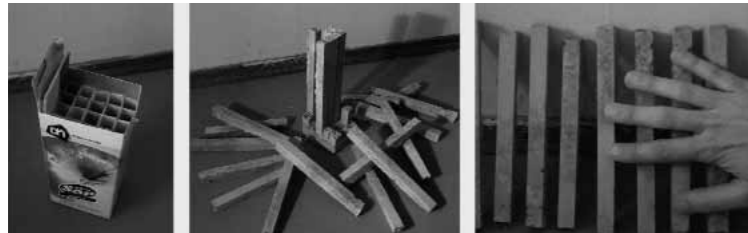
This project tries to reveal the sonic properties of concrete. By slicing stones into parallel slabs or pins it is possible to get soundstones. Rubbing gently with wet fingers over these stones can initiate a vibration of the slabs resulting in a soundcluster. The quality of sound can be compared with the sound of several wine-glasses rubbed with fingers simultaneously. Some soundstones produce their sound even when the wind strikes their sharp edges.

Experiments proved shortcomings of normal concrete for the project of Singing Concrete. Almost all pins broke due to the limitation of the material. The concrete absorbed the water, which was meant to play. It was possible to produce sharp edges but these were of a poor durability. Although the experiment failed in terms of sound, what was really impressive were the smooth and silky-like surfaces of the concrete resulting from the plastic sheets in the formwork. The concrete was tactile, inviting to touch and stroke the surface.

With the special formula of Ultra High Performance Concrete these shortcomings can be met. Besides its excellent constructive properties it is impermeable and has a very homogenous structure. It is possible to produce string sharp edges and plastic formwork can result in smooth and even reflecting surfaces.

The proposed design shows a possible use of Singing Concrete as a sculpture.

[Dutch National Jury] 'Singing Concrete uses the material to play the senses. The jury welcomes sound as an extra tool to create architecture. The concept of singing stones is not new, but the scale of this expressive icon in concrete is. The design as shown in the presentation is not strong, the quality too univocal. The danger of showing attractive existing Klanksteiner in the presentation, only emphasizes the shortcoming of the plan. Sound as an extra dimension in urban and architectural design is worth additional research.'



How did it come to be and how will it change in the future?

Norway / Sweden – Joint First Prize

Åse Flindall – Bergen Arkitektskole

Has concrete aesthetical properties of its own?

Exploring the possibilities of change by applying non-traditional materials and process. With this experiments I wanted to investigate whether concrete in itself could contain qualities, which could project a natural, rich and sensual texture not normally associated to this material.

Natural materials like stone or wood are created by a combination of elemental forces. Wind, weather, geological influences are all applied for an extended period of time, making the material come alive and evolve a historical property of its own.

The process is based on an idea to achieve a change through a procedure of adding a material randomly and then remove it with a dynamic process, such as the application of fire.

The choices of added material, and the uncontrollable characteristics of fire gives an endless variation of qualities and random patterns, similar to what you find in nature.

The different appearances that came as a direct result of the experiments allows for the possibility of further development of the poetry of concrete as a material.

[Norwegian-Swedish National Jury]

'The entry entitled How did it come to be and how will it change in the future shows interesting possibilities for creating reliefs and nuances in concrete surfaces and concepts involving variability. Even though the jury has seen similar solutions before, this entry shows imaginative possibilities to use concrete differently in public spaces, and to achieve changes – intentional or unintentional – over time. The jury wishes to call particular attention to the importance of considering the environmental aspects when objects, of for example plastic, are embedded and possibly burnt away.'



SZ595

Urgent Performance

Norway / Sweden – Joint First Prize

Fredrik Sund – Bergen Arkitektsskole

For most people around the world, living under poor housing conditions and lacking infrastructure, the urgent architectural need is still to fulfil basic housing needs.

This is especially the case for millions of refugees. Having been chased from their land and neighbourhoods, they leave behind friends and family, properties, and their old communities.

The first relief aid given to refugees is often UN's standard tents. They are lightweight, simple and cheap, and can therefore be shipped quickly in vast amounts when a crisis hits. Although they are completely unfit for permanent residence their use is often far more prolonged than is intended.

Climatically they can get too hot in the summer, freezing in the winter, and get easily blown away or torn down by monsoons or heavy winds.

So as many refugee camps become prolonged settlements, the need for a more permanent solution is urgent. Often little follow-up sheltering is provided, even as many camps grow into local communities with tens of thousands of residents, who are to live and work there for often as long as 15 years.

As refugee camps often are cramped and overpopulated – the risk of violence, theft, and physical abuse of women and children can grow intolerably high. Tents cannot provide sufficient privacy or security, and increases these risks.

Refugee camps are highly diverse when it comes to climate, topography, population and needs, and one standard shape can hardly meet the various needs.

But where resources are scarce, simple easy-to-use design can make a big impact on peoples living conditions. And by not providing a strict given form hopefully this concrete building method adapts to a rich variety of conditions, and is easily combined with local knowledge and materials.

By being an open-end design, it empowers the local community and each individual to decide which design they want themselves, and how best collectively shape their own new neighbourhoods.

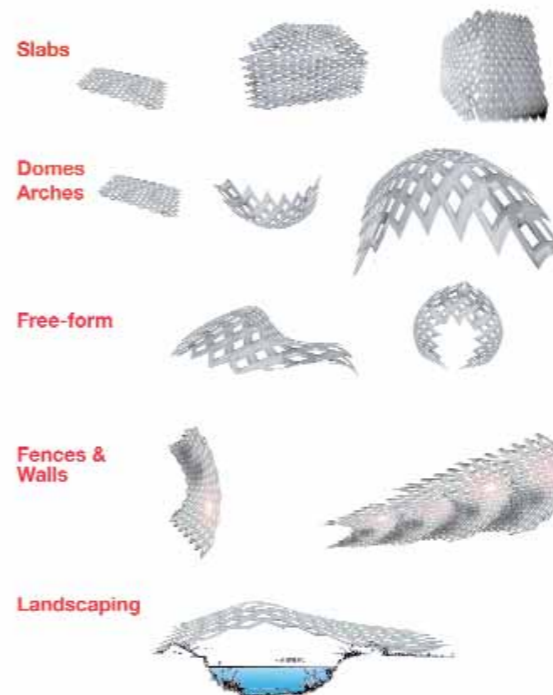
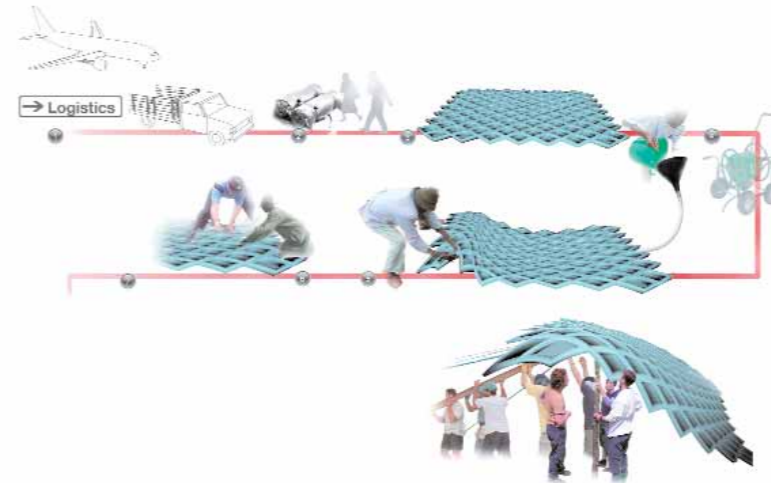
[Norwegian-Swedish National Jury]

'The entry entitled Urgent performance depicts concepts involving concrete structures that are assembled from form-mats, intended for use as emergency dwellings or refugee camps anywhere around the globe.

The jury is highly sceptical of the concept of emergency dwellings of this type, however it does wish to recognise the entry's spatial and experimental value. The entry shows a great deal of experimental, material and production interest, plus it serves as inspiration for possibilities of continued development and research.

It provides interesting possibilities for fashioning a dwelling individually, and makes for exciting buildings without right angles. The idea of filling the form with sand and cement in advance would make the "mats" far too heavy to handle, plus problems would arise with the mixing. It would be more realistic to fill the flexible form in situ with self-compacting concrete.

Further work is encouraged on testing out the form material, the supporting structures during the pouring stage and the handling.'



TU000

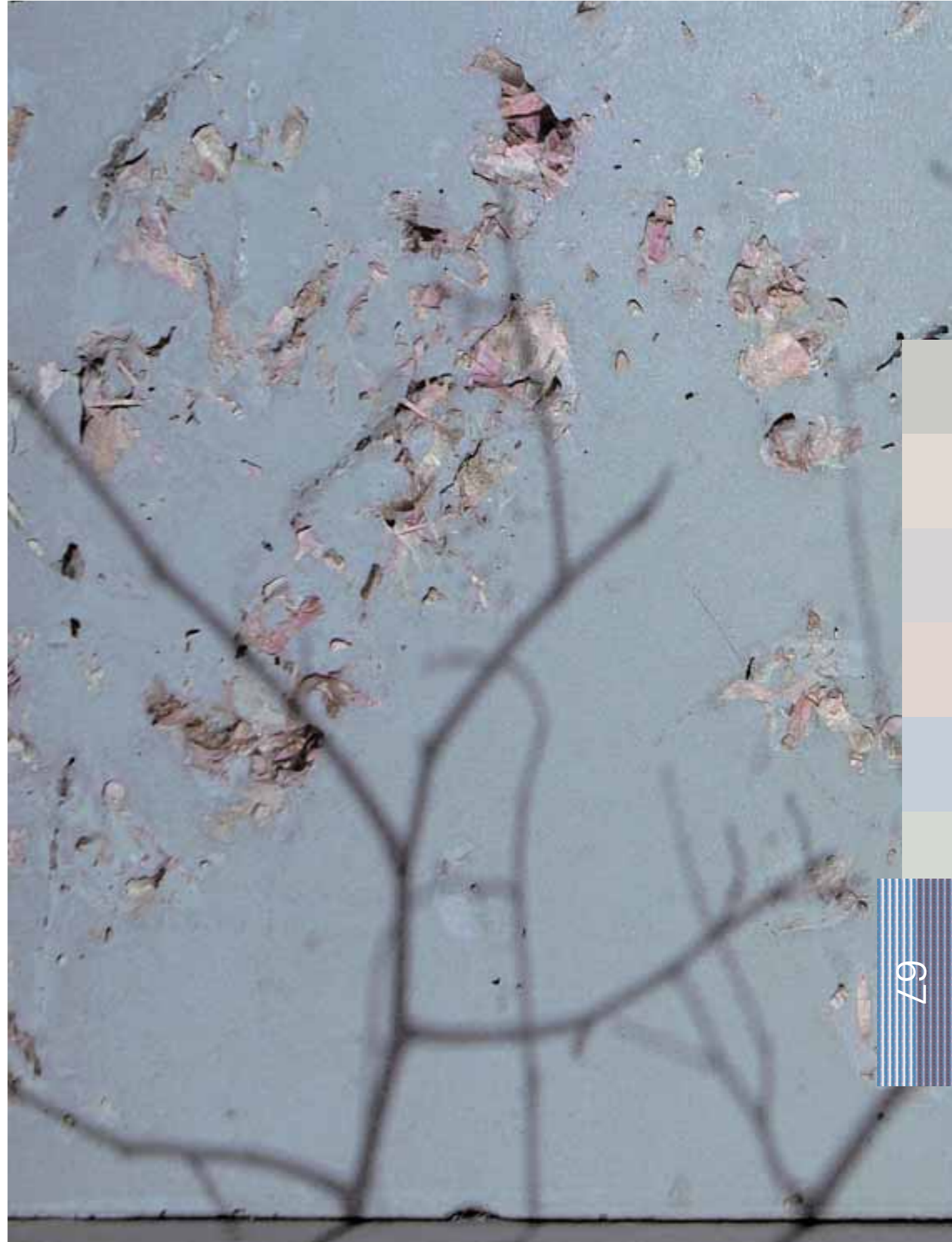
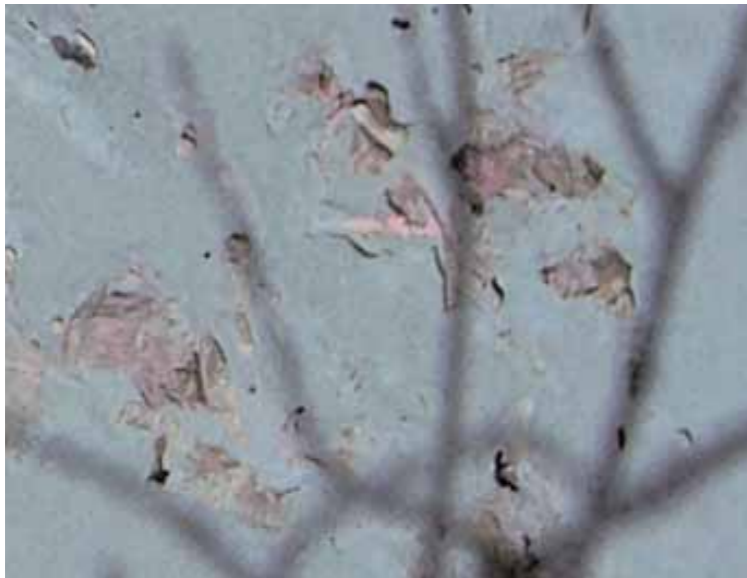
Sakura Concrete

Netherlands – Joint Winner

Ryoko Ikeda – Technical University Delft



[Dutch National Jury] 'Sakura Concrete plays with the senses of the spectator. The jury appreciates the projects as "pure poetry". The combination of concrete with fragile living material (like the orchids that were used in the experiment) brings "soul" to the material and the elements. The contrast of fragility and structural strength is expected to enforce the character of the elements in time. According to the jury this projects meets all the criteria set in the theme 'Implicit Performance'. Sakura Concrete is emotion, is sustainable in its own way and an inspiration for other designers.'



TV531

ConcreTex

Norway / Sweden – Third Prize

Thuy Vu – Bergen Arkitektsskole

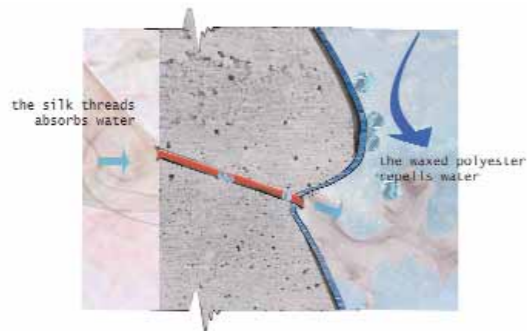
Our building culture has a habit of consuming. When casting concrete the formwork is normally being thrown away after use. A more sustainable way of building is to let a part of the formwork be the end result. The process of making becomes a part of how the finished material will function. The threads that connect the sides of the formwork can contain fibre arming which is a current product. To use polypropen fibres will also absorb evaporation. This way of shaping the concrete exploits the plasticity of the concrete, its ability to first be fluid, then harden.

When building in a cold and wet climate, the general problem is damp damages. There are several types of waterproof concrete that has been developed, but common for them all is that they seal up the cavities inside the concrete, as concrete being a porous material. This prevents the water from going in any direction.

This project is therefore exploring the possibilities of developing a wall that is both water resistant and breathing.

The fabric acts like a weather protection covering the concrete for decades, when its time has come, it can easily be removed. With the rebirth of the concrete is gets a microtexture given by the fabric. This makes it more water resistant similar to the "lotus effect", found in for example the surface of grass. In addition it can be treated with oil to make it even more waterproof.

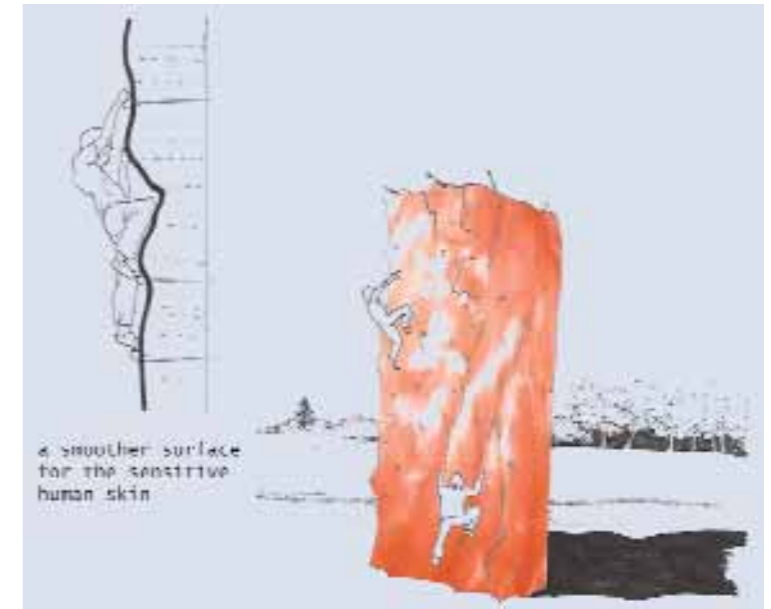
The breathing wall also gives a better indoor climate that can extend, or at least improve the people's life.



[Norwegian-Swedish National Jury]

'The entry entitled Concrete Tex distinguishes itself in a visionary way by showing a great potential for using concrete aesthetically by using hybrid form material. It shows possibilities that are still greater than what appears directly in the material submitted with the entry. The jury wishes to draw attention to the following as possibilities for further work with the concept:

- Using the textile material solely as a disposable form with the possibility of providing individualised and powerful expressions. The textile material should in fact be removed after the concrete has dried, so that the natural surfaces of the concrete will be exposed.
- There is a great potential in working with a construction component such as a "hybrid form". A combination of a remaining thin concrete form, which may be mass produced like a building block, and a flexible disposable textile at the front of the building block, in order to provide possibilities for individuality and creativity.
- A substantial amount of development work remains in order to find the right type of textile that is able to accommodate the desires for creative expression as well as being able to withstand the pressure from the concrete when it is liquid. Full-scale testing is absolutely necessary.'



XO815

FA.MO[U]SS

Germany – Honourable Mention

Benjamin Kinzinger – Universität Stuttgart

Daniel Gross – Universität Stuttgart

Jürgen Utz – Universität Stuttgart

Moss is a quite simple and frugal organism – all it needs to grow is enough water containing ions and sunlight. Furthermore they are very resistant to various conditions like surviving temperatures up to +40C as well as periods of less water. The most important limiting factor for moss is the availability of water. Moss can regulate its water balance on a very small scale. Therefore, an elementary framework can be created for all kind of moss by mixing concrete with a very strong water absorbing / storage substance.

Throughout our research we found so called SAP, which is already used in landscape architecture and agriculture. These polyacrylat / polyacrylamid-copolymers can absorb all kinds of liquids very quickly from 50% up to 400% of their own weight by transforming into a kind of gel. Absorption and release of liquid are managed by osmotic pressure and cannot be crushed like a punk. Therefore, the water and ion-concentration will stay stable over a long period of changing outer conditions.

Characteristics of the SAPs can be adopted in many ways: size of the particles, coated in order to make them hydrophobic, etc. Besides an inoculation of the wall with spores of special species, this would be one option to control which moss should grow on the wall and which not.

Classical concrete itself is also a very unspectacular system – a simple mixture of water, cement and aggregates.

Since we do not manipulate the concrete mixture in any way, this hybrid-system follows the simple character of its components. Only the SAPs – just like any other aggregate – must be added as 'linking module'.

In the end we have a new hybrid structure which can be used as architectural style-component; a monolithic system with an inscribed pattern that can only be seen through the intended growing of the moss.

As a result, there can be a variety of design opportunities combining colour, size, concentration and growth of chosen moss with colour and structure of the concrete.

[German National Jury] 'This work proposes a system for introducing water-absorbent granules into the surface layer of concrete to make it a suitable habitat for certain species of plant life such as moss. In addition an impregnating layer – designed to prevent the growth of plant life – opens up the way for novel architectural applications. The development and presentation of the work carries conviction yet in terms of design it merely scratches the surface. Some aesthetically highly intriguing solutions are indeed presented, yet what is lacking, for instance, is their deeper development in terms of space or a fuller presentation of further possibilities for their use, which the work only hints at. Overall, however, the work offers an interpretation of the competition theme which is both exciting and inspirational in parts, and well deserves its commendation.'



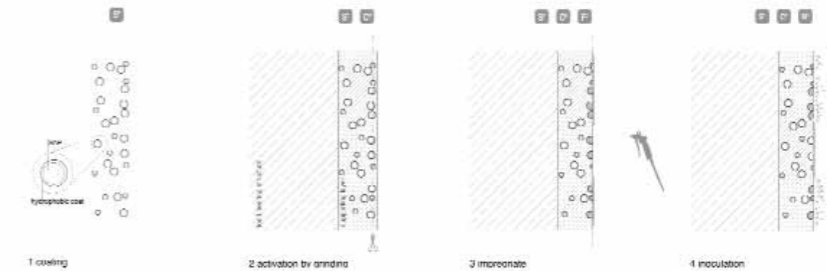
new concrete



aged concrete



FA·MO[U]SS concrete



The Why of Architecture

Eric Frijters and Olv Klijn

'We live in an era of completions, not new beginnings. The world is running out of places where it can start over', observes Rem Koolhaas in his essay 'Last Chance?', published in *AI Manakh* (2007). In that world the building may be flourishing but architecture is dying. Koolhaas's quest is no isolated phenomenon but is symptomatic of a widespread cultural crisis. Architecture is still produced with achievements that date from the 1990s. Accordingly, we face increasing mediocrity on the one hand and an excess of icons on the other. To escape from this deadlock, architecture is in drastic need of renewal. There is just one place on earth where such a revolution can take shape, Koolhaas seems to realise. For him, the Gulf Region is literally 'the last resort for architecture' to realise genuine innovation. But the reality of the global financial crisis seems to have hampered this prospect.

The current crisis makes two issues clear. The bankruptcy of the system has made it clear that the renewal so sought-after is certainly not confined to a particular area. What's more, the crisis opens a huge potential for a range of innovative insights at a very fundamental level.

While up to now architects have focused on the importance of unicity and singular identities, growing in the surrounding world is an unprecedented desire for collectivity. Owing to the advancing effects of globalisation and technological innovation, distances on earth seem to shrink. The growing radius that individuals and organisations can cover is increasing the importance of what is close at hand. Here and there new communities with various social, political, cultural and professional motives are emerging. A feature of these is that individuals are members of more than one community simultaneously, and they set up highly complex and dynamic connections that produce totally new forms of collectivity. These cannot be explained by a pursuit of sameness but are, rather, based on the simultaneous convergence of shared aims. These changeable, hybrid structures are everything but static in composition.

Not only are the structures in our everyday surroundings becoming more hybrid in shape, we can see that process as a gradual one in the development of architecture itself. To discover the implicit potential of it, we explore the hybrid conditions of architecture.



PHOTOGRAPH COURTESY OF FABRIC

.FABRIC is a creative structure that produces spatial solutions. This knowledge intensive design practice is headed by Eric Frijters and Olv Klijn. Their involvement in architecture, urbanism and research results in FABRICations, which appear in a large variety of media. .FABRIC is thinking while doing, whereas a hands-on approach ultimately leads to innovative solutions.

At what levels of current design practice is hybridisation genuinely taking place? And what implications and opportunities does the convergence of previously disparate elements in architecture lead to? To be able to assess properly the range of possible answers to these questions, we dissected the architectural discipline and its creations into five contemplative fields of knowledge for this occasion.

Architecture, in this sense, is a fusion of architectural theory, material properties, structural technology, functional object and cultural component. With these qualifications we identified five conversation partners. A philosopher, a chemist, an architect, two engineers and an artist describe their experiences, give their opinions and make predictions concerning the potential of the 'hybrid condition' in their discipline.

The conversation partners are leading figures that have earned their spurs in their own disciplines with their fresh ideas and innovative creations in relation to hybrid conditions. The aim of each conversation was to link notions of the implicit and the hybrid to a particular discipline and, in that way, give them explicit meaning. In the end, each conversation not only produced answers to our questions but also contributed to a new agenda for the architectural debate. After all, the future takes root only through questions.

The first conversation in the series took place in Groningen. We spoke to philosopher René Boomkens in his study at the University of Groningen. Boomkens is professor of social and cultural philosophy. His almost incomparable discourse is complemented by sources from politics, literature and music. He has concentrated in particular on urban culture, new media and globalisation, and his work has influenced numerous disciplines. He is one of the philosophers who, over the course of the twentieth century, have concluded that philosophy is no longer an isolated discipline. We spoke to him about the time in which this transition has taken place. Architecture seems to apply itself to another new obsession here. Because after an era marked by a passion for deconstruction and the primacy of thinking in differences, a new approach now seems desirable; one that is better related to the fusion and convergence of complexity. A comparable turnaround has been evident for longer in philosophy. Boomkens argues that the era in which discerning differences was the key issue has now given way to a reality in which distinguishing continuities is becoming important. This radical new way of looking requires another type of professional. This change means that specialists no longer just become proficient within their own specialism. In the words of Boomkens, we have entered the era of the intellectual specialist. 'The intellectual specialist analyses themes and puts them on the agenda within other disciplines, viewed from his discipline. On the basis of his intellectualism, he or she is able to communicate with other intellectuals who, in turn, view the same problems from their particular specialism. In such a process, problems are viewed from different perspectives at the same time.'

An early example of such an intellectual specialist is perhaps Michael

Braungart. His specialism is chemistry, but together with architect William McDonough he established the idea of Cradle to Cradle (C2C). We asked Braungart what effects the increasing fusion of composite materials and techniques will have on the sustainability of buildings? Can waste materials still be separated so that they can be reused as raw materials? The answer from Braungart is as simple as it is acute. His daring contention is that there's no such thing as waste. He points out that most discussions about sustainability are characterised by an undertone of reduction, economic use of resources and the lengthening of the lifetime of products. The C2C concept, however, implies no reduction in consumer behaviour. Braungart preaches the opposite: 'What we need in design is not so much to lengthen lifespan but, rather, to deal differently with how we define usable lifespan.' In other words, designers must make responsible choices by thinking not only about the here and now of products but also beyond the actual lifespan about the succeeding forms of product usage. Put differently, it's primarily about management and thinking in cyclical processes of use. Such a way of thinking is in keeping with the development that marks current practice in which an architectural design can scarcely be distinguished from its design in engineering or structural terms. The borders between the aesthetic, physical and structural application of materials, as well as the distinction between part and whole, are vanishing. The weaving of architecture and structural and construction technology into one integrated design process is based on the idea that the building as a whole can profit from the exchange of favourable material properties or advantageous use of space. Since the 1990s architect Ben van Berkel and his UN Studio have been researching a more inclusive approach in which architecture, structure and installation technology converge perfectly. Van Berkel calls the convergence of these elements in space and time the transformative moment in his architecture. With that he tries to liberate architectural space. For the experience and use of that space can develop free of bearing structures and installation technology. However, Van Berkel's hybrid view of architecture places greater demands on the quality and quantity of technical knowledge that the office must possess. The importance of knowledge management within the office, therefore, has direct consequences for the office organisation. On the one hand, this means that new fields of knowledge are added to the traditional office composition, among them ICT and CAD tasks and disciplines. On the other hand, this also implies a reshuffling of personnel from project teams to more thematically structured arrangements. Such arrangements can be connected to the formal complexity of particular geometries that recur regularly in the office vocabulary. A comparable fusion of previously disparate production processes is evolving in the office of Klaus Bollinger and Manfred Grohmann. Bollinger + Grohmann offer an answer to the increasingly strong entanglement in both the temporal and spatial sense of architecture and engineering. The domains of the architect and engineer are no longer sharply divided. We spoke with Bollinger and Grohmann about

a new generation of designers currently being educated as both engineers and architects at various universities. One of the promises of this generation is that they will be able to link the formal rules of structural design to the richness of architectural ideas in a fruitful manner. And that is necessary because switching back and forth between the two fields of knowledge is occurring with increasing frequency. A structural design can no longer be considered independently of the choice of materials and associated engineering of the skin, for example. Spatial concept and structural design form one entity in their work. Apart from in education and at a structural level, Bollinger and Grohmann discern a process of hybridisation within their own office structure. Owing to the increasingly close-knit mixture of organisations and design processes, it is almost impossible to precisely pinpoint where a design process started or finished. In short, the notion of copyright that lies at the heart of architecture is in need of reassessment.

Just how collaborative processes between specialists from various disciplines lead to exceptional results can perhaps best be illustrated by the work of artist Olafur Eliasson. His work can be viewed as one of the most radical studies of the 'hybrid' at the moment. None of his works can be confined within existing categories such as art, applied art or architecture. Olafur Eliasson is without doubt the most radical when it comes to penetrating the current situation and the possibilities of this in-between position for the future. Although he conducts his analysis from the discipline of art and argues that the object has become 'non-performative', his comments have implications for probably all cultural practices. According to Eliasson, space for new thought processes will be created in the shadow of the current economic crisis. A new language can and must be developed in the space that opens up, a language in which the combination of thinking and doing is again of real importance. After all, interpretation is contained in the activity itself and you can cause change by participating. In other words, criticism is already contained in the 'act of doing'. The interesting thing about architecture is precisely that it is hybrid. It is neither science nor art. Architecture represents a view of the world though an indiscernible mixture of technology and artistic expression. In the most recent development of the discipline, the technical dimension would seem to be gaining the upper hand. Eliasson agrees with this. His opinions on perception and reality are rooted in phenomenology. His artworks are completed only at the moment of perception. For it's at that moment that there is a relation with the observer, who becomes aware of the reason for the art. After all, art is about *why* and not about *how*. Collaboration between an artist and a chef de cuisine, for example, can result in a recipe. The cooking of the recipe represents the *how*. The eating of the recipe signifies the brief flaring of the artwork as an individual experience. The resulting awareness reveals the *why*. Eliasson is thus able to remove the object from art.

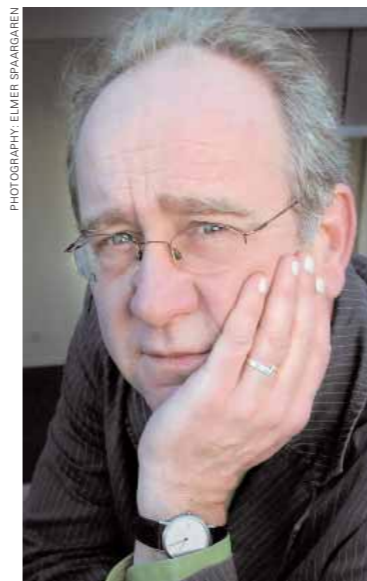
If we translate the way out of a dematerialised art into architecture, then we can ask whether we should consider the building to be the

one and only route to architecture. Can architecture be liberated from the building, just as art is liberated from the physical object? And what about the liberation of architectural space that Van Berkel aspires to by making architecture, engineering and installation technology converge in space and time? Doesn't that liberation also constitute the programmatic hijacking of the built object at the expense of its flexibility and sustainability? Can architecture really innovate now that Bollinger and Grohmann are stripping it of geometric and structural limitations? Or is the next revolution in architecture completely separated from its physical appearance? Will architects be able to consider successive life cycles of their works? Do Braungart's radical views on sustainability offer enough pointers to allow architecture to play a significant role in avoiding an ecological crisis that might possibly constitute more of a threat than the current economic slump? And will architects seize their liberation from just a building discipline to devote their intellectual capacity primarily to analysing problems within other disciplines? Has the moment arrived for the reintroduction of the architect who claims his social role? Perhaps this rescue of architecture offers an opportunity for intellectual specialists in space to consider again the *why* of architecture.

The Intellectual Specialist

Interview with René Boomkens

by Eric Frijters & Olv Klijn



René Boomkens is a professor of social and cultural philosophy at the University of Groningen. His almost incomparable discourse is complemented by sources from politics, literature and music. He has focused in particular on urban culture, new media and globalisation, and his work has influenced numerous disciplines. He is one of the philosophers who, over the course of the twentieth century, have concluded that philosophy is no longer an isolated discipline. Among the issues we discussed with him were the causes and possible effects of the most recent development in architecture, which after an era of deconstruction and differentiation is now embracing its latest obsession: the melding of complexity.

What idea lies behind your approach in using a multitude of sources to arrive at thought structures?

It's actually much older. In fact, ever since the scientific revolution new sciences have branched off from philosophy, and new sciences have developed autonomously. And increasingly, philosophy is pushed back onto an increasingly small domain. At a certain point that domain was even questioned completely. The view was that philosophy is about nothing, unless it considers other forms of producing knowledge within other disciplines such as art, or the sciences. I'm describing a very gradual process here, and in it you essentially see two positions. One is rather conservative and states: 'Philosophy should stay well clear of its own forms of truth, because the sciences are doing that already.' And then there is a position that states: 'No, philosophy is actually the discipline that unearths problems and asks questions that are fundamental to the day-to-day business of what the sciences are dealing with.' Whether it's about string theory or sociological statistics, in both cases philosophy asks impertinent questions. With that it balances in a risky manner between the academy on the one hand and the arts on the other.

Is this phenomenon perceptible in the heyday of modernism alone?

It became an issue again in the 1970s and '80s. People like Foucault, Derrida, Deleuze as well as Sloterdijk and Rorty tend towards a more literary philosophy and consider their work to be a form of art. But it's also a form of science, and therefore knowledge does play a role. It's rewarding to operate where those disciplines intersect, even though this does lead to a form of shopping. Then you get things like deconstructivist architecture, of which we have a wonderful example here in Groningen. Shopping also carries risks of its own. For example, the production of nonsense, which is what many French philosophers have produced. But sometimes that nonsense proves very fertile and it's no longer nonsense. Foucault helped me most in that regard. He was the first philosopher I read where I thought: this isn't a philosopher but an historian. He does something very different to what I thought he would do. Later he addressed the issue and expressed it wonderfully when he said that philosophy itself doesn't have problems as such but has to seek out problems elsewhere. For

elsewhere you have the day-to-day business; and when it stagnates, questions are asked that can no longer be solved in the everyday technical, scientific or artistic jargon. And then it's philosophy's turn. That's called analysing problems. That's how I view my own activity.

Joost Meeuwissen compared architecture to celluloid. It's a material that does not have meaning. You have to make another type of projection before it can become architecture. Looked at like that, one imagines that a closer relation between architecture and philosophy is possible. Is it possible, for example, to compare both disciplines because they adopt a position vis-à-vis the world?

Yes, it's very risky, but it's certainly possible. Both architects and philosophers have done it a few times before. Let me start by going way back. On occasion, Walter Benjamin commented in one of the most ridiculous discussions ever between two types of architects: those from the École des Beaux Arts and the engineers. In the end, the discussion was about nothing, since both sides were right *and* wrong. You see that dialogue return a few times, such as in the philosophy of Heidegger and all sorts of architects who elaborate on it. All of them deal with the issue of whether architecture is more than the technology of building but not directly an art. In that sense it has something in common with philosophy. It is situated on the border between two extremes. If architecture becomes pure art, it's a spectacle or pretentious. If it's considered to be merely a technique like any other technique, then it's too banal. Hilde Heynen once stated, in reference to Peter Eisenman: if architecture wants to make a statement, then it should realise that one has to be able to live in the statement. If you have to live in a building by Eisenman, Heynen was implying, then your bed will be sawn in two. That's the difference with an artist who makes a statement. You hang that on the wall or you make an installation or performance of it. But that then passes and it doesn't cause any pain. In the relationship with two extremes there is a clear similarity between architecture and philosophy.

How do you describe your way of practicing philosophy?

I think that my form of practicing philosophy – and I'm not alone in this – increases value, because we are modest in the sense that we take the problems of others as the starting point in philosophy. I prefer to speak of empirical philosophy. That doesn't mean we conduct empirical research but that we take our material from other domains. That can be everyday life, or science, the arts, politics and so on. At the same time, we are not so modest just to deal with it explicitly. We try to describe the problems of others anew and thus open up new perspectives.

The differential thinking of the 1980s was a revolution at the time, in the sense that we were suddenly confronted with all that thinking about essences, which resulted in numerous philosophical as well as scientific and artistic experiments. That was very productive but it also meant that philosophy ended up in a crisis for the umpteenth

time.

The upshot is that one now notes a turnaround. We are witnessing a reaction that tends towards very conservative thinking, which is looking for what remain of old pretensions that we had in philosophy. On the other hand, there is a much more critical line of thinking – and I hope I have contributed to it – that looks for continuities after the era of discontinuity and differentiation. The question we ask is what relevant continuities can be rendered visible in that chaos of permanent, spectacular transformation processes.

In architecture too, one now notes a similar twinned movement: people who fall back anxiously on craftsmanship, and architects who think about what sort of knowledge they need to acquire in order to adopt a meaningful position in the world. Are there more disciplines where this is happening?

That's difficult to say. The interesting thing about architecture is that it's hybrid. It represents a worldview but at the same time it is technology. That makes it comparable to philosophy. It is not art, nor is it science. If you reduce philosophy to a technique, and that happens a lot, then it becomes something of an exercise in logic. But philosophy as art, that leads to equally horrible things. Sloterdijk is an example of that. He's a brilliant author but he sometimes produces complete nonsense. You can often skip hundreds of pages in his books, since they contain nothing. He does have very creative and original moments, however. Sloterdijk is a typical word philosopher who introduces new terms in a relevant way. He invents words that help you look at an issue in another way for a time. When a word gets worn out, then another word appears. But most artists in philosophy are mainly interested in the hermetic use of language and that's terrible.

Could you give an example of the right way?

There are a number of creative, political philosophers who formulate problems related to existing concepts. They ask themselves what democracy 'actually' is and what its limits are. They conduct a discussion with much more content and try to offer insight not only into the possibilities for our form of democracy but also into the impossibilities. Someone like the Belgian philosopher Chantal Mouffe has been active in this area for years. Another example is the Italian Agamben, who has always dealt with the study of exceptional situations. For example, he started with the wartime concentration camps, but he's also delved into architecture and the politics of urban planning. Agamben considers suburbia to be a form of concentration camp. Suburbia is the exceptional situation that cities find themselves in. Or rather, the exceptional situation has actually become the normal situation. We've lost our understanding of urbanity – that's how I interpret him. I think he goes too far here, but it is creative.

In your view, globalisation is producing another type of citizen. You also argue that we should take popular (American) culture much more seriously. In architecture we see that the best architects are often in league with elitist theories. It is mostly

complicated philosophers who are behind this. In fact, the greatest talent and the strongest thinking capacity is in the wrong place. What insights do architects miss out on as a result?

I cannot speak on behalf of architects. But I can try it in the words of Italian philosopher Gianni Vattimo. He has also been criticised for being too weak (i.e. for making too many concessions to mass culture). He argues that on one point we have erred in popular culture, and that is that popular culture would force a homogenous lifestyle of sameness upon us. The fact is that in the 1960s the whole cultural rebellion made clear that the opposite was the case. We always thought it would become one grey mass culture. We haven't been liberated from capitalism; we haven't been freed from all forms of political repression. Those were the dreams back then. The interesting thing is that in the 1970s and '80s we were liberated from doom-mongering about mass culture. When I studied it was not done to talk about football if you considered yourself an intellectual. You just didn't do it. Ten years later it had become essential, for otherwise you were just a nerd.

A huge change has taken place. Sections of the elite have started to take mass culture seriously. What Vattimo emphasises is that we have erred on one issue. We thought we would never be able to escape from the 'average culture' but in fact that popular culture was in truth a form of democratisation. For it has given people who previously thought they could only take part passively in culture the possibility to take part actively. That does not always lead to major achievements but it's absolutely not the case that it's led to homogeneous mediocrity. If you take that as a gain, then art is still needed as a critical elaboration and debate on the diversity of mass culture. We no longer have a clear direction. Nor is it so, as the philosophy of the Frankfurt School puts it, that 'Art must represent the negative in the world'. Then you get art that no longer speaks, says nothing more and is totally lacking in tone. That was a mistake. So the challenge for artists now is to make relevant differences in a society that already has many differences. That's the aim.

In the profession of urban planning there is the defeatist idea of a generic city. Travellers cannot deny that surprisingly many cities are the same. Is it right — following the misconception that no 'mediocre culture' has been created — to now conclude that the 'generic city' is likewise based on a mistake, because it is actually just a product of mass culture that always produces difference in the end?

Possibly. The generic city could only come about if there were one producer. It is, in some way, comparable with the whole idea of the International Style, which was based on assumption that a transparent architecture was imaginable, which would create the same effects everywhere. That turned out to be a misconception. Since the 1970s there has only been criticism of this idea. First with kitsch regionalism, then deconstruction and even postmodern architecture that works with medieval references. On the other hand, in the processes of globalisation there are a number of economic

laws that produce more or less comparable effects everywhere. What results is a new type of urbanity that is dependent on patterns that apply everywhere. That leads to developments that are very similar, but not to the generic city. We can make comparisons that we previously couldn't make. The aim must be to intervene here again, and that can be very different locally or regionally. Indonesians deal very differently with it than, say, Canadians. Difference for the sake of difference is not a value in itself. But you only discover that when you have the feeling that something is imposed on you — an identity that is not yours, or an identity that seems timeless.

What threat does that produce?

There are two possibilities. The first effect is that you become colonised. Then you end up with the American pulp identity forced on you. Everyone knows the symbols associated — Coca Cola and McDonald's. Then you have the various forms of resistance such as the Slow Food movement, or the revival of regional cuisine. In the field of architecture it is expressed in a sort of Gehry-fatigue. Gehry, in fact, is one of the architects who broke radically with the International Style. But after a while there was a sense that 'we now that trick now'. That, incidentally, is one of the reasons we don't have to be afraid of the generic city, provided there is no colonisation of architecture. The risk is that an easy formula architecture could be imposed on architects by the international business community. Some cities in the Middle East are already caving in under the weight of so many icons. You also hear such complaints in the Netherlands. Noud de Vreeze expressed something similar recently. He expressed the fear that young architects no longer have any time whatsoever to think about architecture, because they are absorbed in a sort of formula architecture by the existing offices that are wholly dependent on what the market demands of them. I think that's a big risk.

The second effect is what the French anthropologist Marc Augé called 'non-places'. This concerns an unclear style that can be applied more or less easily everywhere. It is expressed in copycat behaviour that determines the short-term interests of a certain type of business. We have to intervene somewhere very quickly and we have to build quickly and cheaply. You will probably see that often in Bombay, a city that has tripled in size in a decade. Something similar is happening in Shanghai. Cities are emerging with huge centres of rapid economic development that consist of the inevitable formula architecture. My expectation is that all sorts of resistance will emerge against this. The architect who is most involved will lead that resistance. So in ten years Indian and Chinese architects will come up with a very interesting new questioning of architecture, because they will have become sick and tired of the umpteenth Shanghai that rises up somewhere in the Pearl River Delta. You see that already in the reactions to Dubai, which is dubbed as something of an 'extreme make-over'.

Your book *A Threshold World. Modern Experience and the Urban Public Domain* deals with four cases that describe four fractures

in the development of modernity. It begins with the Paris of 1850 and ends in Los Angeles in the mid-1990s. We're now ten years further. Is a new fracture in sight that is also producing a new physical expression of urbanity?

I think that that's one of the effects of transnationalisation. What we've been talking about up to now is internationalisation! That concerns the fact that a technologically driven or determined style of building is permeating everywhere. That's been very heavily criticised for twenty years, but real alternatives haven't been developed. Now we see the emergence of transnational identities. These are based on the fact that people can live in two or more cultures at the same time. The meaning of the term transnationalism: you come from India but you live in the US, yet you still keep in touch with Indian culture in all sorts of ways. The growth of the Indian ICT sector makes many Indians somewhat fearful: 'We'll all become Americans'. The answer to that is: 'No, we are modernising, in an Indian way'. Thoughts on identity are changing. Identities are not closed but contain a certain amount of openness and temporariness. It's even possible to combine a number of identities with one another. I think that's a new element that one could possibly find in architecture. The first suggestion here is perhaps how we think about religious architecture and the question of whether a Western European mosque is possible.

Your last book is about globalisation, in which you argue that the citizen is changing. That intrigues us enormously. The change also has implications for our idea of civic liberties and the emancipation of citizens. Perhaps the citizen will cease to exist soon? After all, it's a Western idea. We will probably be outclassed entirely, simply by numbers, so that the new rules of citizenship will spring from an Asian understanding of it. That can have huge consequences for all our activities, as philosophers or as architects. If we leave aside the doom-and-gloom perspectives, do you also see opportunities or challenges?

That's one of the central problems. If I can come back to what I said at the start about what good philosophy is, namely that you appropriate the ideas of others, analyse them as problems, and try to think them through further, then this is one of the things that philosophers should, I think, address. A number of them do that, luckily.

Then the answer to your question. Freedom is something that you, according to the old theories, are handed by the state. It offers you protection. Citizens derive their freedoms to a large degree from their behaviour as market consumers. Some liberals draw the conclusion that politics is over and the market suffices. That's a challenge for philosophy. It's clear that old government no longer functions. But it's equally clear that the market isn't able to substantiate what we all thought was guaranteed through our notion of citizenship. Citizenship is more. We just have to let go of the image of the well-read, newspaper-reading citizen who meets his

friends at the forum and argues about the future of the polis. However, it is not desirable to introduce the Chinese form of citizenship without any discussion. I do think there's a need for some discussion before they are allowed to impose their form on the rest of the world (laughs).

Another notable model is the Latin-American attention for the consumer-citizen. We could also consider forms that involve a number of political strands co-existing. In such a construction there are no longer any central or national governments who have set up a political process of delegation from the top of the pyramid down. I'm thinking more of a model in which all forms of independently operating citizens appropriate sections of society they themselves determine. A little similar to what you see in American community movements, for example, which are organised around house-ownership, or around other interests that people have in a particular region.

Are you referring to Internet communities like Linked-In and Hyves that people join for career or social reasons? You see that some of those people are part of various networks and make all sorts of contacts there and develop all sorts of activities. Is that a comparable image with an overlapping system with political domains that you can sometimes tune in to interactively?

Yes, someone who has thought about that was the political philosopher Herman van Gunsteren. In his book *Vertrouwen in democratie* he mixes a number of forms of knowledge from very diverse fields: elements from biology, information technology and sociology. In concrete terms, this means a fusion of insights from, for instance, the study of termite hills, intelligent systems and the behaviour of masses. He mixed all that in an interesting hodge-podge based on the premise that the discussion about democracy is always conducted incorrectly, because it always starts with the assumption that democracy functions badly. He argues for the opposite. We have to begin the discussion on the basis of faith in the system. You acquire that faith if you put into perspective the dominance of the central system and realise that systems can often operate independently without a single director in charge. The principle of self-organisation is that systems 'can do it alone', which is exactly what many people in politics fear now. A dictator doesn't really run the termite hill. Okay, there's a termite queen, but she does nothing but lay eggs. Yet it still works. You also see such self-regulating systems in information technology. He bases his ideas here largely on the famous book *The Wisdom of the Crowds*, in which the author shows that if you let lots of people take decisions, those decisions produce more than we think. The masses aren't stupid. Precisely because the average is aimed at, the masses turn out to be cleverer than individual leaders. On the basis of that form of knowledge you can start to think about forms of self-organisation in which the state doesn't stand above you but, rather, beside you as your temporary partner.

Is Van Gunsteren alone in this?

Someone else who thinks about this is Saskia Sassen. She, too,

speaks about a form of transnational citizenship. To her, that model should also apply to the business world. Companies should be given certain citizen's rights and obligations, because companies are, in fact, just like nation states, except that they are not democratic. So her proposal is that companies that enter the domain of a nation acquire both rights and obligations when they enter. An underlying thought here is to prevent that companies only make one-sided use of a certain area where they are temporarily located. Sassen also wants companies to invest in their surroundings by literally building something there.

Searching for continuities means permanently asking what your own discipline can mean for problems outside your discipline. Could that be a new formulation for the architect to develop?

Yes, it's certainly one step beyond the generic city of Koolhaas. That was of course a provocative essay in which Koolhaas described how he woke up one day and the city no longer appealed to him, and so he decided to build a new city, just like in a film set. Naturally it's not that easy in reality, but what Koolhaas was stating is that it's a tendency that's genuinely present in current urban planning. He came up with the rather fetched statement that no identity is therefore needed any longer, because we rediscover identity every day anew. I think one can interpret this statement in two ways. The first is very favourable for Koolhaas, namely that he wanted to provoke and make visible the fact that identity can be questioned radically by today's architecture. The less favourable interpretation is that identity belongs to the past. That seems to be a fairly lazy solution, because it's not really a solution at all; it's a mistake. What's more, it's a paradoxical statement, which you can only make against the background of a certain identity.

After the differential thinking that dominated the 1980s and '90s, we find ourselves in a world in which the effects of globalisation are gaining in strength every day. A focus on differences has given way to an emphasis on flexibility and hybrid properties. In a changing society, in which one is a member of different groups at the same time, it's unavoidable that another type of person with other skills is emerging. Are we rediscovering the *homo universalis*?

Yes, but it's no *homo universalis*. Foucault calls him a specific intellectual. First there was the 'universal intellectual' who had to know everything, passed sentence on behalf of everybody, revolted, and so on. That time is over. In his place we now have a specific intellectual. That is someone who can apply his specialisms in all sorts of different places. He could be an engineer or biochemist, for example, but that doesn't mean that he only works with gasses or with technology. The specific intellectual is fully aware that those gasses have relevance for society and that political consequences could ensue from the deployment of those gasses. The person in question is therefore not only specific but also intellectual. That, I think, is the ideal form in which that flexible identity is forged.

But there's also a downside to this. Increased flexibility leads to an endless stripping bare of the skills of people. If after five years you don't need a certain type of ICT knowledge, then you force all your staff to retrain. In that case flexibility even has a threatening side. That's why I put forward the word continuity as a critical element. If you are too flexible, then at a certain moment you lose grasp of your own identity. Conservatives will shout that you have to hold on to that one identity, but that's a lost cause, and in the worst case can even lead to fundamentalism. The other extremity is a sort of permanent urge to be flexible, as a result of which you get the feeling at a certain point that your flexibility is at the mercy of others. Between those two extremes, thinking about continuity is crucial. For that we have to thank discontinuity thinkers, who pointed out to us that discontinuity is simply everyday reality, which we cannot escape.

Cradle to Cradle Design

Interview with Michael Braungart

by Eric Frijters & Olv Klijn

It's probably unnecessary, but could you once again briefly explain the principle of Cradle to Cradle?

Cradle to Cradle (C2C) design is a holistic approach to the creation of products, materials and services, with attention for quality and social concern for the environment. What's important is that things are produced on the basis of 'doing something good'. Cradle to Cradle is a way of designing that supports both the biosphere and the technosphere (industrial systems and processes). Viewed romantically, it's ultimately about beauty: a product cannot be beautiful if it's poisonous or if it smells badly. We learn to make use of things instead of having to apologise every day for the fact that we're here on earth. It's about *rematerialisation*, not about *dematerialisation*.

It's important to look at things in an aesthetic manner. That, I think, is the most significant link with the theme Implicit Performance. If you translate that theme to design, then I think that you could say that Implicit Design is based on a good and natural way of dealing with social and environmental aspects, without applying any labels. It's not about thinking that it's ninety percent less bad than previously. The approach of Implicit Design opens up many possibilities; we no longer have to manipulate products because it is in every sense a quality product. Design is about celebrating the human footprint.

Can you explain the success of C2C in the Netherlands?

Someone once told me that it is currently considered the only positive agenda. In the Netherlands they are much more pragmatic than elsewhere when it comes to C2C. The Royal Family, various ministries, universities and the industrial sector all agree that C2C has the future. There is a real ambition to ensure that all public purchases are C2C by the year 2012. In the Netherlands it has caught on in the commercial sector and big corporations like Akzo, Philips and DSM have put thousands of scientists to work on C2C. It is amazing to see how fast it's going and how critical the Dutch are. The documentary by Rob van Hattum (Tegenlicht, 2006), which introduced Dutch people to the theme, emphasised that C2C can be a source of pleasure. And pleasure is exactly what the Dutch design culture exudes. Dutch designers are so creative because they are not



PHOTOGRAPH COURTESY OF BUREAU MICHAEL BRAUNGART

Professor Michael Braungart has a background in chemistry. He is Professor of Process Engineering at Universität Lüneburg and also director of the interdisciplinary materials flow management masters' programme. In addition, he heads the EPEA Internationale Umweltforschung GmbH in Hamburg, and together with architect William McDonough he co-founded McDonough Braungart Design Chemistry (MBDC) in Charlottesville (USA). All these organisations share a common aim of intelligent, aesthetic and eco-efficient design. McDonough and Braungart devised the Cradle to Cradle (C2C) concept. 'Waste does not exist,' is Braungart's motto. As long as we use sustainable and 'healthy' products, we do not have to harm the environment. On the contrary, Cradle to Cradle demands a totally different way of thinking about reusing and recycling. It's a positive agenda in which

consuming leads to something good. What effects do the material and technological processes of hybridisation in architecture have on the sustainability of buildings?

afraid, possess enough self-confidence, don't get intimidated easily, and always approach things critically. They are also surrounded by good industries and universities. Nonetheless, one has to place a marginal comment about all this optimism. After all, there is a danger that companies and authorities, even the European Union, claim to be doing good but are only pretending, when in fact they are not adhering to the C2C formula. It is like with socialism turns out to be anything but social. Likewise, ecologism is not good for ecology.

When was the first time you considered the issue of waste and reuse? Was it at the time of the Expo in Hannover, for which you formulated the Hannover Principle?

No, earlier, around 1986. I protested back then against a Swiss chemical company. From a conversation I had with the CEO I realised that we actually shared the same ideals and perhaps might be able to help each other. I was then given two million dollars to talk to all sorts of people in different professions around the world (from Brazil to China, I even spoke to the Dalai Lama) to analyse how they saw their role on this planet. It quickly became clear to me that people everywhere had different ideas, and the difference between West and East was particularly significant. China, for example, was for thousands of years made up of very highly educated people who never had to steal food sources from elsewhere or destroy their environment, in contrast to the Western world. In the East one usually thinks in circles. My discovery of that in 1993 started the criteria for the scientific concept Cradle to Cradle. Then I met William McDonough in America and we developed the principle further together.

Is it true that it's easier to apply the principles of C2C in a building, where you can predict what will be recycled, than in a product like a toothbrush, which can end up anywhere on earth?

No. It's more difficult with buildings because you have to deal with a tight time schedule. We're now working on the A2 motorway tunnel in Maastricht, in which materials are applied that actively clean the air. Not by means of emissions from the ventilation system but mass that genuinely cleans the air. The material itself is intelligent, as it were, and results in a building that supports the biosphere. But let's come back to the toothbrush. It is mainly down to cultural reasons that one prefers not to use someone else's toothbrush. We learned such hygienic mechanisms that saved our lives in the past. For 'virginal' issues it's different: Sometimes it's particularly fine to know what is happening in the world. At the same time, we all want to be the first to discover everything, to go everywhere no-one else has been before. For the toothbrush it's also true that this will be absorbed by the biosphere again after use. We see large toxic wastage in all sorts of areas. If we take Rotterdam, the biggest port in Europe, most of the ships leave empty. Because of the lack of cargo, they are filled with ballast water, even though cargo might well be transported a few days later.

Why isn't all that coordinated better?

Equally illogical is the fact that a firm like Philips designs televisions in the Netherlands, has them produced in China, and then takes them back to the Netherlands to be sold. Some years ago I suggested creating more service-oriented products, whereby we work with accounts where you can buy five hours of television for example, the pay-per-view principle. The same could apply to washing machines too. Imagine that people could buy one thousand wash cycles instead of a washing machine.

Although it's clearly about a cyclical way of thinking about products and use, the C2C concept is abstract to many people. One question that arises is whether the concept is still developing and advancing or whether it's a fixed principle that should be implemented everywhere?

In the American version of C2C, one of the three basic principles is 'respect diversity', but that's not enough. It's about actively celebrating and supporting diversity, for otherwise it doesn't exist. That's the essence of C2C, a culture of support rather than telling people what they have to do. Strictly speaking, we should therefore speak of Cradle to Grave, but that name lacks the attractive and supporting effect.

But no matter what, every time it turns out to be difficult to explain what C2C exactly is, that it's mainly about rediscovering everything, and that it's about 'doing good'. What we need in design is not so much a lengthened lifespan but another way of defining the useful life of products. Coming back to *Implicit Design*, this means that the designer has already designed the use of products.

To show what we mean, we've tried to apply our C2C principles in the design of various products, including our version of the famous Herman Miller office chair. The steel frame developed by us for the C2C version is designed in such a way that you can take it apart in two minutes and reuse all the parts. It is both a design tool and C2C; it's about both the components from which the product is made and about management. After the success of the first fairly innocent C2C products I would now like to design cars and computers according to the same principles. The effect of our contribution would then probably be much clearer.

You illustrate that the C2C chair can be easily dismantled and that all components are homogenous. The Mercedes Benz Museum in Stuttgart by Ben van Berkel, where the structure is located in the same space as the architecture and the installations, is both hybrid and heterogeneous. Does this new development in the design of buildings make the idea of C2C more difficult to apply?

No, quite the opposite. That chair came about because it's cheaper to do it like that. But if you look at something like the 'topline initiative' in Rotterdam, whereby extensions are added to the tops of existing buildings instead of demolishing them, technically we see an increasing blending and mixing of materials. In an economical and

social sense this is useful reuse and we could even speak of a C2C approach. What it's about is that we have to learn to look at materials in another way. We can really continue producing and consuming large amounts. Waste doesn't exist if we design everything in such a way that it can be used or applied for another purpose, or combined in a worthwhile way without it having to lead to something complex. Rum, for example, tastes much better with a little lemon juice.

Is that perhaps the biggest risk to C2C? That it could be misunderstood? That the hype is bigger than what C2C really can mean for the world and our pattern of consumption?

Many people do not understand C2C even at a simple level. They think that we're talking about avoiding waste but that's nonsense. True, we do mention waste but make the comparison with fruit. For as soon as you talk about waste, you immediately think about waste. That's like if I ask you not to think of a pink elephant, which is exactly what you then do. We call it 'waste equals fruit,' but for me it is 'fruit equals fruit'. It's not about minimising waste and CO2 emissions but about what we can do with products when we no longer need them. Thinking about life cycles is critical because people protect their products and want to preserve things in the condition in which they know them. C2C advocates another approach; it's not about lengthening the life of a product but about designing a product so that its useful life is defined in another way. Implicit Design strictly means that the usage is designed into the object and that I know when I will get it back.

It's about designing products that are good and 'clean', and in that sense I'm especially interested in the architect's self-esteem. When an architect no longer sees the challenge in buildings where the air inside is cleaner than the air outside, that's a nasty business. It's true that architects, and designers in general, try to make good products but they focus too much on the wrong things. Especially when it comes to existing buildings, people often think in standard terms about reuse and recycling, and I think they do not really arrive at genuinely innovative solutions.

Could you give an example that illustrates that 'completely differently'?

I recently wrote an article in which I advocate a new approach to architecture. Not like Le Corbusier once argued that buildings are white machines that people live in, but about the idea that buildings for people are stationary secondary containers, just like cars are for transporting people, and newspapers for news. What is the best way to make containers for people? First of all, clean air in buildings is essential. Secondly, a building needs to interact with its surroundings. So let us make buildings that support the environment, instead of trying to control the climate. When buildings 'do good' then many more people would accept a tower in their immediate surroundings.

Let us make things that are useful for the climate, the biosphere and the habitat around us. As a chemist I'm able to make chemicals that



do not harm the environment. We could in any case choose less polluting chemicals, but we just pay too little attention to it. If you accept that after a period you have to be able to eat a product, then you will automatically think about materials that are not poisonous. At the moment we are working together on various projects in which we notice that architects are still too much concerned about the form and appearance of buildings and do not seem to consider the people who live in them.

Architects, you argue, are too preoccupied by aesthetics. How can they be made aware of the idea that the world needs intelligent buildings?

It's not about blaming architects but about making them aware, starting today, of the need to think about every material they deploy in buildings. The notion of Implicit Design can help to clarify the intention of a building, now and in the future too. It allows us to use new materials and not simply choose the cheapest but to sell it as a service, to use it. This also applies to spaces that we no longer use and for which we can look for new functions. We are very inconsistent: we try to save energy in all sorts of ways but in the meantime we continue to build. My question is then: why don't we build well straight away, with good materials?

In discussions about the environment one often hears that it would be better if we weren't here at all, if emissions were reduced to zero, but that's not the case. It's not about sustainability but about celebrating design, about rediscovering everything.

Liberating Architectural Space

Interview with Ben van Berkel

by Eric Frijters & Olv Klijn



PHOTOGRAPHY: KOOS BREUKEL / COURTESY OF UNSTUDIO

For Ben van Berkel, the idea of the hybrid condition in architecture is a given. As Principal Architect at UNStudio and Professor of Conceptual Design at the Stuedleschule in Frankfurt am Main, he has worked with this subject for some time. Complexity isn't avoided but rather pursued as part of an integral design approach in which construction and spatiality merge in remarkable fashion. The attention for the organisation of the design process, the development of knowledge communities that structure research, and the development of 'design models' form the three pillars that support the search for innovative insights. That this sometimes leads to contradictions in the final work, which does not by definition have to be a building, is inherent in the process: after all, the results can't always be predicted.

In different design disciplines we detect a merging of insights. Disciplines such as architecture, urban design, landscape design and product design can be less sharply divided than a decade ago. Is this a positive development?

I think that in our profession we must produce much more culture, and not only buildings. Absolutely everything is possible in architecture now. Every form is possible. But if we architects do not give our work something more in the form of meaning or a viewpoint, then I fear that architecture will very soon no longer be interesting. Luckily, with my office I'm in the position that we do more than make buildings, because we force ourselves to think about a wide range of issues all the time.

Are you referring to the fact that UNStudio also makes books?

Yes! But it's difficult to do more than just make buildings. Sometimes I have to consciously slow down the pace of the office by refusing commissions and creating time to think. This year we'll certainly free up more time for deepening. That does not mean that we turn down fantastic offers, but we have agreed to take part in fewer competitions and tenders.

This measure is not enough for writing a book. That's only possible if you really concentrate on it. So I try to withdraw with my partner Caroline Bos a number of times a year. After such a period we usually don't have a complete book but just an outline.

Does the merging of different insights and tools to think about architecture acquire form not only in buildings and books but also in the organisation of your office?

That's right, we've always been interested in the infrastructure of our office, and we apply a clear philosophy concerning our organisation. Because the better we – Caroline and me – are organised, the better our infrastructure and the more time we can take to consider the content of the work. Many fellow architects do not understand why we put so much energy into it; they think it's just a commercial sales argument. But for us the quality of the company is very important, and so it meant a lot to us that last year we were elected 'Architect of the Year' and that our office is ISO certified. The advantage of that

care for our organisation is that I can now devote more than half my time to the content of projects. That wasn't the case in the past. Eight years ago I was spending as much as eighty percent of my time on management work, and the only time for design work was in the evening and on Sunday afternoon. That was a disaster. I worked five times harder than now, and the quality of the work wasn't any better. Caroline and I have very clear theories about the functioning of a hybrid office organisation. In line with our views on quality, it's not only important that we continue to improve our infrastructure and communication but also that we introduce better specialisms within the company. We no longer work according to the model whereby we let a draughtsman work out a sketch and then set the technicians to work. We believe more in a network structure in which specialists work together. To achieve this we create *knowledge communities*. Working in such a *community* are people who are good at developing ways of applying a complex geometry together with people who know how they have to programme software, and people who are 'obsessed' by *sustainability*.

So is knowledge the most important asset within an architecture firm?

I think so. Besides a good infrastructure for sharing information, I strongly believe in experience. In architecture, gaining experience is an important requirement for making innovation possible. After all, innovation is easier to understand for a client if the architect possesses demonstrable relevant experience. In addition, I believe in intense production work. Many people are amazed by why we produce so much work. But for us it's a form of endless training in which I notice that we improve every time, not only as an organisation but also as designers. One of the effects for the office is that we clearly try to develop a line of research in our work. To help us in that endeavour we try to devote attention to a number of themes each year.

What are this year's themes?

At the moment I think that urban design is very interesting, but strangely enough social housing fascinates me enormously as well. Right now there's an unbelievable amount of attention for luxury apartments. In the Asian market and in Manhattan we've gained considerable experience with this typology, and I've the idea that we could make use of that experience in the much harder market of social housing. Perhaps you then couldn't call that market social housing any more, but there's a lot to be gained in *low-market* housing. In Spain, for example, we're working on a scheme where our experience with expensive apartments is proving very useful.

Art forms a rich source of inspiration for many architects.

Collaboration with artists often turns out to be less successful than imagined beforehand. Or is your experience different?

What strikes me is that artists are often better than architects in dealing with the values of their discipline. Architects often have the tendency of

translating commercial, cultural and political values into buildings. Since artists are less explicit, their work often allows us to think differently about things. That said, art generally plays a different role within my work than it does in the case of, say, Herzog & de Meuron, who regularly work closely with artists. Their idea is that through very close collaboration architecture can become art. I, on the other hand, believe that architecture itself can be much more art. Although that potential has often been exploited in the tradition of architecture, we make too little use of it today. Our theatre in Almere is proof that it's possible. The façade of that building is an artwork in its own right. The continually changing colours stand not only for changing weather conditions but also for a way of looking at the world. So for me it's not primarily about working with artists. Rather, in discussions with artists I try to distil a thought framework. In fact, that aspiration has been an issue in my work for a long time, but in recent years I've talked more openly about it. That's got to do with the fact that the urge for me is not as big to try and translate insights from the world of art literally. For me, thinking and talking about those insights is more important.

The idea of the hybrid has played an important role in art for a long time. Just think of Greek mythology. Does art offer leads in thinking about this subject?

The idea of complex or hybrid geometry clearly originates in painting. Just like Caroline, who's originally an art historian, I've always been very fascinated by the difference between the Venetian and Florentine Renaissance painters. The Florentine painters often sketched the geometry of their work in advance, while the Venetians, like Tintoretto, developed their geometry as they painted. They simply began somewhere on the canvas and let the painting emerge from a certain geometric moment. You can see the same principle at work in some Venetian architecture.

The transformative aspect that lies hidden in the work as a result has always impressed me. The way in which geometry is developed on the basis of a non-fixed moment that, in a manner of speaking, can begin as a box and end as an expressive form, offers wonderful possibilities. Architecture can therefore potentially be liberated from every stylistic form. Translated to my own work, this interest can provide an explanation for the hard contradictions in our output. The transformative moment can of course be recognised in our projects that change in geometry, but it can also have an effect on the choice of materials.

Could we also interpret your aim to make transformative architecture as an aim to make integral architecture, in which all elements of making space seem to coincide rather than be composed?

What I said about the organisation of the office is also true for our buildings. Just as we aim within our organisation for connections, we see the traditional opposition between aesthetics and function disappearing from our architecture. We do not view function and

aesthetics as opposites but as points on a circular line. What's more, it's a circle that seems to stretch with each new building. The concept of the hybridisation of all elements of a building is very important.

Could you say that your architecture is becoming more neutral?

More neutral but also more exuberant. The modernists viewed architecture as a reductive discipline. They believed that architecture could only offer progress if we could design it in a reductive way. I actually believe in an architecture that is reductive, but at the same time carries many more profiling possibilities. A complex geometry, for example, can admit a lot of simplicity. Or a building can be optimised in terms of logistics and, at the same time, evoke a more expressive and riper spatial experience.

The building in which we succeeded best in achieving such an effect is the Mercedes-Benz Museum in Stuttgart. In this building it's as if you are not entering the spaces; it's as if the spaces follow you. As a result, Mercedes is very much about the diagonal space in which the creation of an integral architecture was an important aim of ours.

Owing to the fact that there are no installations visible in this building and there are no columns in the spaces, the whole museum has become one thing. Everything converges in the same place. Whereas previously spaces had a clearly distinct function and logic, here they are all contained in one hybrid constellation.

An earlier example is the Erasmus Bridge. In fact, the ambiguous reading of structure and space was visible for the first time in that design.

It's often assumed that the bend in the pylon of the bridge is purely aesthetic, but that's not the case. Given that in the Erasmus Bridge there's a very strange ratio between the short distance of the back of the bridge and the enormous length in front of it, the bend is needed to make the arch from which the bridge deck is suspended. Such hybrid ambiguities are also contained in the Mobius House and Villa NM.

Are there particular design tools that you deploy to make such buildings?

We work with *design models*. A *design model* is a translation of an idea that not only works as a geometric model but also as a diagram for the design. A sort of prototype that can guide the design and with which you can edit. You can also think of a *design model* as a few principles or big details that guide the design. The equivalent of a *design model* in science is a thought model. Unlike in science, an architectural thought model can be visual and spatial as well as linguistic.

Does working with a *design model* also have a practical meaning? Is, for example, the spatial junction in your design for the station in Arnhem a *design model*?

More considerations often lie behind the spatial idea for a building. In Arnhem we wanted to make possible a number of visual relations and make a direct structural connection. That's why a twist was designed.

Although we knew what we wanted spatially and what we needed structurally, it was difficult to think of how that twist could in fact be made. So we had to do a lot of research into production techniques and formwork. For example, we discovered that the underside of the twist would emerge much more beautifully from the form if we 'poured' it from bottom to top. Since you're then working against gravity, you're able to control the process better. We learned a lot from our study of the twist and we developed new ideas. In the end, the press focused mostly on the complexity of the twist in the station, but in reality this element comprised just three per cent of the total design.

Does the Arnhem project perhaps show that making innovative architecture in the Netherlands is a laborious process?

You're certainly able to make interesting buildings in the Netherlands, but there's a big culture of discussion here, and you can't simply change that into a 'can-do' culture. There's a gradual shift in interest towards quality.

The project in Arnhem is a fairly complex project, certainly in terms of execution. From the 'twist' we created in the music theatre in Graz we learned that you have to think very carefully during the production process about which formwork techniques to apply in order to make such a complex form as good as possible. In Arnhem we had a lot of luck with the contractor (BAM, previously known as HBG), which developed a very innovative formwork technique for the curved wall in the car park. They, too, embraced the challenge of the project and worked on it with a lot of devotion and professional ethics. Their readiness to innovate was immense. Although they are not the designers of the project itself, the finished result clearly bears their signature, and that's remarkable. After all, the Dutch building industry is traditionally innovative when it comes to cost efficiency. That's why we're so good at housing. Everyone learns from us in that area. But when it comes to pure research, very little time is devoted to it in practice. Perhaps because so much is produced.

To deal with this problem, architects are forced to conduct research in their own time. How much time does your office devote to research?

Although it varies from project to project and even from year to year, you could say that on average we devote about twenty per cent of the time in each project on research, independently of what we are paid. There's an important limiting factor here. For almost all architects working in any way on the frontline, one can say that they have to invest much more in research than they are actually recompensed for. Like my colleagues, I do that because to me architecture is the most fantastic profession there is and because I know that if we didn't do any research we wouldn't achieve the quality we now achieve. Instead, the work would be coarser, easier and cruder.

Fusing Architecture and Engineering

Interview with Klaus Bollinger and Manfred Grohmann
by Eric Frijters & Olv Klijn

In engineering design we see forms of hybridisation at different levels. For a long time there was a clear distinction between the expertise of an architect and that of a structural engineer, but now we see a fusing of knowledge. Was this development latent 25 years ago when you set up your office?

We studied together in Darmstadt. After graduation we each went our own way, but we met up again after three years, and it turned out we had the same interests. Independently of each other we both wanted something that was uncommon at the time: to design structures with architects.

Engineers in Germany preferred to call themselves *Statiker* at the time, and their work mainly involved calculating the stability of structures and buildings. In practice this meant they spent their days controlling the work of architects and making calculations to ensure that buildings didn't collapse. We had another approach to the discipline. We wanted to be involved in the design process right from the start by working together with architects.

Our example in this was Stefan Polónyi, who was then professor at the University of Dortmund and the only engineer who was a member of Team X. Polónyi was convinced that engineers and architects had to learn to work together even during their studies. He was therefore an advocate of so-called co-education, which was unthinkable to most architects at the time. Polónyi put his ideas on education into practice by organising design tasks for students with Rem Koolhaas. Although what Polónyi was trying to do seemed new, in a way he was reverting to something that had been discovered two centuries earlier with the 'master builder'. Our office, Bollinger + Grohmann, builds on this tradition.

There is indeed a long tradition of buildings being produced by architects and engineers together. For various reasons that collaboration has declined over the past half century. But now we are witnessing a convergence of the two disciplines. Are engineers getting more interested in what engineers can contribute to architecture?

Probably both. We often notice increasing interest among architects for the structural process and the considerations upon which engineers base their choices. There is clearly more interest for what



PHOTOGRAPH COURTESY OF B+G INGENIEURE

The projects of engineering firm Bollinger + Grohmann are located all over the world. From its head office in Frankfurt am Main and locations in Vienna and Paris, they work with an international selection of architects. They offer them an all-encompassing range of services that provides clear proof that architects are involving the engineer increasingly early in the design process. More and more, the architecture, the detailing and the construction of a building all form an indissoluble entity. But what does this intensification in the relationship between engineer and architect signify for the potential of architecture in the sense of renewal, innovation and exchange of knowledge? Klaus Bollinger and Manfred Grohmann share their views on the increasingly blurred distinction between the design and engineering disciplines.

you could call the engineering aspects of design. As structural engineers, we mainly teach future architects at both the University of Kassel and the University of Applied Arts in Vienna. This is a conscious choice for us; we think it's important to shift the focus. Although we work every day with numerous calculation models and formulae and know how important these are, our aim, certainly in education, is to develop an understanding of the underlying principles, the patterns behind the figures. In this way we hope to nurture students' feeling for the structure of buildings. What we want to achieve is not that architects take over our work in the future but that they understand better how engineers think.

Our approach is certainly not unique. Various people have abandoned thinking in terms of a strict division between engineers and architects over the past 25 years. Now various universities educate designers to be both engineers and architects, and that leads to brilliant people who are able to link the formal rules of structural design in a productive way to the wealth of architectural ideas.

To what extent does the knowledge generated within your office and the knowledge generated at universities mutually influence each other? Is there such a thing as a knowledge network, for example, or are the office and university separate worlds?

We are in a favourable position thanks to our university links. After all, there's time to do research at universities, and that is often lacking in our office. Research results and knowledge acquired flow easily through to our office. But on the other hand we can introduce our practical experience at the university. Since people from the university spend a period at our office, and since people from our office prepare some of the teaching material for the university, there is a direct exchange between the two.

Ideas are constantly going back and forth and that results in a hybrid and highly fruitful relationship. This hybrid condition, the *Implicit Performance*, can be seen not only at the level of the building or materials but also increasingly in the mixture of organisations and design processes. So it is impossible to say precisely where a design begins or ends.

In addition to technical knowledge, there's a lot of architectural knowledge at Bollinger + Grohmann thanks to this fusion. Could you imagine that, as a result of this development, there will be no need for architects in the future?

No! Architects will always be needed. Although a growing number of fellow engineers also take on architectural work, we know from experience that the result is always better when we work in teams in which everyone has his own specialities and qualities. We engineers are just not the same as architects.

Although there are architects working at our office and we have all the technical expertise to make buildings independently, that is not our aim. The architects who work with us are there so that we can work better with external architects, not replace them. In the competition for the Städel Museum in Frankfurt, for example, we

worked intensively with Schneider + Schumacher Architekten. After winning the competition we decided with the architects that we would work out the technical details of the design. That does not mean that the architects relinquished control of the design. After all, they determined the rules for the design. But we are optimising the geometry of the building using computer models and feeding the results of that optimisation back to the architects.

We will probably adopt a similar approach in the project we presented this morning. This concerns a new entrance for the stock exchange in Frankfurt. The architect in question was asked to design a skin (surface), and we are responsible for the structure beneath the skin. Owing to the collaboration between our office and the architect, the definitive design displays no clear division between our work and that of the architect.

The relations and responsibilities between architects and engineers differ from country to country across Europe. In the Netherlands the engineer often gets involved late in the design process. In England and elsewhere there are examples where structural engineers – Cecil Balmond for instance – work closely with the architect right from the initial sketch. Do you envisage a future in which we, as in medieval times, have offices where one person performs all tasks?

We certainly dream of returning to the era of the master builder. The big difference with the past, however, will be that the master builder will no longer be an individual but an office. We cannot ignore the fact that interesting new possibilities may arise when architects and engineer work together better again. History has certainly shown that it's possible – just look at SOM or Fazlur Rahman Kahn.

We notice that your work is not a matter of unequivocal logic. Structural solutions seldom arise through tackling problems with figures alone. Different methods are usually combined. In other words, you deal with the convergence of principles in constructing buildings. Do you see more general trends that point to the fusing of ideas?

The use of the computer in all areas of the design profession produces a convergence of ideas. The actual making of buildings is currently the only limitation. Architects and engineers are, in a manner of speaking, looking for a method to bend glass in their work. Everybody is looking for ways to make what is created as a free form on the computer with the help of various specialists, but that is not always possible. For in the building industry we work at another level than, for example, in the automobile industry, the shipping industry or the aviation industry. The wonderful things that happen in the shipyards are rarely possible for buildings because they are simply too expensive. The big difference is that we only build one-offs.

Bollinger + Grohmann is active in the area of sustainability, as are people in many other design disciplines. Is this development

a step backwards or is it a challenge?

It is a new challenge. It is not only a question of material but also of design, of lifecycle. When you design a building you have to realise what could happen to it over the next one hundred years. One of the possible answers to building in a sustainable manner lies in the flexibility of the building so that you don't have to demolish in the future but can reuse it. We still construct too many single purpose buildings that pay no heed to future changes in terms of form, routing and installations.

Sustainability should therefore be much more than just reducing energy consumption or promoting materials produced in a sustainable manner. It's much more about a holistic approach in which architects and engineers have to make use of each other's expertise. If there were just one sustainable solution, then all buildings would look the same. That's not the case, luckily. Sustainable solutions can differ a lot from one another. The building we made with Coop Himmelb(l)au for BMW in Munich, for example, is designed on the basis of a clear idea about sustainability. After the opening of the building, however, the question was often asked whether it is realistic to think that people will be driving around in cars for much longer and what that means for the building. Our answer is that the building will still be very useful even when it isn't used to sell cars. That's because it's designed as a public space, a building that can be used by everyone in the city. If BMW moves out, it can easily accommodate another function; it is public domain. It could function in the future as a market or a congress building.

Are you interested at a higher level as engineers in the discussion about sustainability in relation to how cities and landscapes are planned and how we move through them?

In a practical and strategic sense, our decision back then to locate our office in Frankfurt was mainly down to its central location and the accessibility of this city. By setting up here we consciously tried to optimise our position. And we still benefit from our strategic location in Europe, but despite that we now try to limit our movements. We try not to go everywhere all the time and instead communicate more with the phone and the computer.

But yes, we are seriously interested in thinking about a sustainable organisation of our built environment. What's important here is to approach current problems in a new way. Engineers in particular are accustomed to tackling a complex problem and dividing it into less complex part-problems, solving these and then bringing all the solutions together, but that is not a holistic approach. Architects are, in that regard, often more holistically inclined by nature. As I already said, an important strategy of our office is to work with architects right from the start. Almost by definition, such collaboration opens up more perspectives to deal with the issue, and to us that is a better way of approaching complex problems.

Does that mean that if we go back to the level of the object, that hybridisation is inevitable in architecture? Or as Ben van Berkel

calls it, that we will see more and more inclusive design in which structure, installations and architecture increasingly become one?

We always try to see the bearing structure of a building as an independent element, so that the rest can do what it wants. That does not mean we don't see a building as an integral system. We also try to merge technical, functional and aesthetic elements. In the past buildings had to be cheap and little research was undertaken. As a result, the willingness to innovate in the area of technology decreased. Over the past fifteen years the German building industry has gone in a totally different direction to the rest of Europe. A major building programme was implemented in East Germany after unification in 1989, but it stopped suddenly in 1994. By 2006 the number of people connected to the construction industry dropped by 1.5 million to 700,000. What's more, Germany did not take part in the estate boom that occurred in all other European countries and in the US. In 2005 there was absolutely no nominal growth in the price of real estate. In fact, prices actually dropped owing to inflation. You could argue that there is no construction industry at the moment.

Nonetheless, your work reveals a clear architectural ambition, an attitude you normally don't find among engineers.

Perhaps our attitude is not so much architectural as simply human. The desire for change and the constant curiosity about new possibilities and new solutions is something that is determined by evolution. The ongoing search for new spatial solutions is probably contained in our genes.

What is your greatest achievement to date?

The building by SANAA in Lausanne. Nothing like that has been built before. The building is not only a one-floor plate of programme, but also a remarkably flat arch that spans 80 metres. That means that we as structural engineers had to work with a volume in which there was scarcely any structural height available, given that the building also had to be very transparent and floor and roof therefore couldn't work together structurally.

We calculated the building in different materials but concrete turned out to offer the best possibilities. By nature, concrete is probably one of the most hybrid materials because you can manipulate the recipe to give it different characteristics. At the same time, working with concrete is like baking bread, in the sense that you never know how it'll turn out until you remove the formwork. Another problem is that concrete shrinks and, with a flat arch that has a relatively big influence on the structural performance of the arch. To address this problem we seriously considered using steel. It turned out to be possible to construct the building in steel, but the cost would have been much higher.

Not How, but Why!

Interview with Olafur Eliasson
by Eric Frijters & Olv Klijn



Danish artist Olafur Eliasson is based in Copenhagen and Berlin. His work is included in many collections, including the Guggenheim Museum in New York and the Los Angeles Museum of Contemporary Art. He came to international prominence with The weather project (2003) at the Tate Modern, Eye see you (2006) for Louis Vuitton, his contribution to the Serpentine Gallery Pavilion (2007), and of course The New York City Waterfalls (2008). An important feature of his work is its transdisciplinary character. From that perspective his contribution is perhaps the most radical elaboration of research into the hybrid. None of his works can be understood within the confines of existing categories like visual art, applied art or architecture. With him we discussed the potential of the immaterial.

We're interested in the idea of dematerialisation. What caused you to stop thinking about art as an object and view it as an experience instead?

My interest in dematerialisation can be seen as part of a wider contemporary development. In the early 1990s, there was a new interest in the phenomenology of visual art. Attention shifted from the object to less tangible issues like communication and connections. At first I wasn't very interested in fleeting phenomena, but when I studied them I discovered that they provided a stronger way of supporting content than was possible with a material-based approach.

Within art, architecture, design, and related cultural fields, objecthood has in part been substituted by the idea of performative strategies. That development clashes with the established, conservative view that artworks possess a so-called soul that is defined in terms of materialist or essentialist values. In response to this, I try to turn art into an instrument again; to make art a sort of 'performative language'. To achieve that, I've abandoned the traditional language of the object and introduced a more ephemeral language. In that way I create ephemeral phenomena that are in harmony with the phenomenology I mentioned earlier. Both require a proactive approach and proactive principles.

Does the dematerialisation of art also imply a separation from reality?

No, on the contrary. My work is integrated into our historical present in a natural way. I don't view the world outside as a neutral place to which I add objects, but as an environment that is already charged with meaning. In that sense, my view differs from the prevailing conception of art: historically, visual art is stigmatised by its self-imposed autonomy. But nothing I do is objective or autonomous. What I do relies emphatically on my relation with my environment, or the relation of the work to the context.

You just mentioned the internal necessity in visual art of breaking with the object. Could you also point to external factors to explain this change of course?

The first current of dematerialisation in art took place in the late

1960s and early 1970s and was linked to the collapse of the economy. The American art historian Lucy Lippard wrote a book about this called *Six Years: Dematerialisation of the Art Object from 1966 to 1972* (1973). It discussed the reintroduction of social agendas in art, which at the time was much more dogmatic and less cross-disciplinary than it is today. In the late 1980s, when the art market collapsed owing to the financial crises, visual art, and also architecture and design, lost their status as commercial products. Interestingly, the collapse of political or economic systems generally creates space for new thinking. There comes a period in which art can and must find a new language. So, at the end of the 1980s, the understanding of phenomenology changed from its being a formal thought principle, removed from social reality, into a social and interactive language. The transition was quite abrupt and not all artists playing in this field were able to make the transition from the 1980s to the 1990s. In particular the established names, unable to think dynamically, were stuck within the market system. However, philosophers like Jean-Luc Nancy or the sociologist Bruno Latour who were socially engaged and worked in a less abstract way, were able to pick up on these developments. Right now I see another turning point because the economic prospects are even worse than they were in the late 1980s.

Put that way, then we should brace ourselves for a new wave of dematerialisation?

I'm convinced that when a structural implosion occurs, as is the case now, the language of art will reorganise itself. As we find ourselves in a situation in which almost all transactions and traditional means of global structuring, both financial and political, are on the point of collapse, the language of our everyday surroundings is also in a state of transition.

Could you give an example of an appearance of that new language?

An interesting example is microfinance in which there is clearly a new language. Although microfinance will probably not be as successful as the capitalist model of business, it does open for possibilities of reintroducing a meaningful connection between the object and its value in trade. This means that design, its function and social agenda, will suddenly have to re-examine itself. In the Netherlands, the relation of design and architecture to social issues has for a long time been primarily formal. Viewed in the light of the current changes, I foresee a collapse of this arrogance and I hope that new and different languages will emerge that introduce a more intimate and responsible way of connecting design with social visions. As a matter of fact, a Dutch designer recently designed a reading lamp powered by solar cells. During the day you expose the lamp to daylight and when it grows dark, you can read in its light. This modest example shows that design can be proactive in its address of urgent, environmental issues.

The point I'm trying to make is that the structure of the business

model not only embodies a new way of negotiating space and objects, but also uses a new language to bring this negotiation about. The language with which business can be done within microfinance is much more relevant than many people realise now. After all, agreement to a loan in a microfinancing situation probably occurs over the Internet or by using a mobile phone. As a new relation is forged between the financial world on the one side, and socially engaged art, design and architecture on the other, the traditional banking system will eventually be radically changed.

You refer to the radical changes that microfinancing structures can cause to the structure of our capitalist world as a metaphor for an entirely new language. Are you thinking here of self-regulating patterns?

Definitely. At the same time, however, I think that self-organisation has become a burden. My preference is a model that has a built-in self-critical management. I long for a process that is constantly negotiating with reality. We shouldn't replace one dogma with another but aspire to a more relative model. This means that the relationship between individuality and collectivity cannot be translated to party political programmes, left or right. As a result, we always end up in a polarised situation. Rather, I believe there is a need for simultaneity in which you are both individual and part of a collective. For that to be made explicit, we need a new language. As an artist, or cultural performer, I consider it my task to express a sort of friction or resistance or criticism in the development of that language.

So you think that art can contribute to the redefinition of the relation between the individual and the collective?

Yes. As a matter of fact, I think it's something that art has been dealing with for quite some time. In the current crisis, it's crucial that individuals feel responsible and present in society. Art is an interesting example: it can emphasise or redefine the relation between the individual and the collective by generating both a collective and an extremely individual experience in exhibitions or public space. Commercially driven places like shopping malls, on the contrary, pretend to offer individual experiences, but in reality set up grand generalising structures to which the consumer falls victim. Naturally this is put crudely, but this doesn't conceal the fact that there's a big difference between a cultural institute and a commercial enterprise. I therefore think that not only artists but also cultural institutions can play a role in redefining the concurrence between individual and collective worlds by functioning as critical voices.

That seems to touch the essence of your work, which has been described as: 'seeing yourself sensing'? Is there here, too, a strong relationship between the receiver and the artwork?

Yes, that's certainly the case. Everybody is the co-producer of his own experience. In that sense, you share responsibility for reality,

and you constantly evaluate the nature of what you see. Evaluation doesn't take place when you get home and reflect on what you've seen. It happens while you are actually seeing it.

How does that evaluation take shape?

Historically it has always been the case that successful artworks provoke evaluation. That moment of evaluation is crucial to our perception. Something in what you see has to elicit evaluation so that you want to assess not just the seen object but also your visual apparatus and habits. It's a sort of implicit criticism. An important means to that end is to include an indicator that makes you aware that you're not looking at a real room or a real sun or a real waterfall, but at an artwork. When the Italian Baroque painter Giovanni Battista Tiepolo created his *trompe l'oeil* ceiling paintings, which created the illusion that the building reached the sky, he of course knew only too well that nobody would really think they were looking at real clouds. A healthy dose of criticism and self-reflection ensures that you also evaluate the nature of your own identity, which is implicated in your gaze. Successful art is therefore not Disneyland. As a distortion or representation of reality, the artwork has to openly admit that it is a model. A model is a much more convincing tool for saying something about reality than a product that claims to be reality itself.

So does 'Seeing yourself sensing' constitute a criticism of general truths served up in a commercial structure?

In a way, yes. 'Seeing yourself sensing' hands responsibility over to you as viewer. You are responsible for what you see. And at the same time you're responsible for your own time and your idea of presence. Phenomenologically speaking, you're able to have an impact on space by negotiating with it. If you don't involve yourself, if you only act as a consumer, the relativity of your environment is minimal. But if you involve yourself, I think it's possible to liberate space from commercially imposed and prescribed power structures and thus change your surroundings, just as you can change democracy if you use your right to vote. In other words, the criticism is already contained in 'doing it'. The judgement is inherent to the activity itself and you can cause change by participating.

So is it about 'thinking while doing'?

In an artist's studio, the union between thinking and doing is extremely important. Real criticism never comes from the thinkers. It can only be *organised* by the thinkers. Real criticism relies on doers. Talking about something is different from actually doing it. Thinking is of course important and essential, but not much will change without active participation. Doing alone is uninteresting too. A successful evaluation of reality, or a successful 'climate change' can only take place when thinking and doing are in balance. If you're good at translating thinking into doing, then you'll be much more successful than if you concern yourself with only one of the two. Al Gore is good at thinking. His challenge is to translate thinking into doing. You have to be able to translate theories in a proactive

manner. That's also what an architect does. You have an agenda or an idea that you want to turn into a spatial structure. You set up a dialogue with the owner, the future residents or users of the building, and then there's suddenly a new set of rules that co-produce reality.

Coming back to the relation between art and economics, is there something the market can learn from art?

It might sound strange, but I believe the current crisis is a result of the unwillingness of industrial leaders to be progressive and to question existing structures. All criticism is removed from their activities. That's why the American market is suffering from the largest crisis in decades: it's been all about doing and scarcely about thinking. For the same reason, firms like BMW and General Motors are in serious trouble. In most types of production it's considered financially counterproductive to submit to the feeling that the object is relative with respect to the user. Nobody wants to buy a 'relative' car. The producers prefer to say: 'This is a timeless, classic design that will never change'. For years this static, arrogant attitude was profitable and it will probably prove fatal for the car companies now. With the economy collapsing, a call for change has 'suddenly' emerged.

In your own work you often use the idea of experiment. Should we interpret doing experiments as perhaps a dynamic response to a static world?

In the late 1990s all sorts of art symposia were held in which artists and scientists met one another. I quickly arrived at the conclusion that I had little in common with the other participants. Nonetheless, the coffee breaks during those gatherings turned out to be extremely productive, because that's really where ideas were exchanged. Based on the example of those coffee breaks, I've organised an annual event for the past three years called 'Life in Space' (LIS). In my studio I gather a selected group of friends, collaborators, and other people who inspire me. I offer this colourful group of social scientists, designers, architects, physicists, psychologists, neurologists, instrument makers, and cognitive scientists a forum for all sorts of experiments and activities. Friends like Mark Wigley, Beatriz Colomina, Sanford Kwinter, Daniel Birnbaum, and Bart Lootsma have helped cultivate a very special intimate atmosphere. And I often also work closely with some LIS participants in my studio – Kjetil Thorsen and Günther Vogt, for instance.

Next year you will also start your own art school in Berlin. Did this idea emerge from those annual gatherings?

Yes, my Institut für Räumliche Experimente [Institute for Spatial Experiments] opens in April 2009 for a trial period of five years. The essence of the school is spatial experimentation. The school has come into being in collaboration with the Berlin University of the Arts (UdK) and the German Ministry for Education, Science and Research. In contrast to the other professors at the UdK, I will teach in my own studio, where I want to create a platform for real experimentation –

there should be room for experiments without a clear purpose or a predefined result. Even within the field of architecture there is too little fundamental experimentation. An exception is the C-Lab at MIT, for instance, but this is viewed as standing outside the normal approach to architecture.

The way of working in your school sounds like a melting pot of different disciplines. Do you operate along similar lines in your own work?

I think it's important to see art as a language with which you can say everything. And what's more: art can take on any form. I can be an architect, design something and say: 'This is my artwork'. But I can also cook, write a play, or make a lamp. Exactly what I do is not so interesting. It's *why* I do it! In the arts it's primarily about the motive. The 'how' serves only to intensify a political, aesthetic, or ethic dimension. 'How' is the way you can achieve something, and 'why' is the idea.

Put like that, we come to the topic of dematerialisation again. Had I been obsessed with the object, I would have closed myself off from everything and confirmed the arrogance I referred to earlier. But I have an open attitude towards the world.

Does the issue of 'why' always precede 'how' in your work?

Not always. For some time I've been working on a music instrument that produces space [working title: *Spatial vibration: string-based instrument, study II*, 2008]. Together with the violin-maker Hans Johannsson and my studio team, I've developed an apparatus based on harmonic and disharmonic patterns. Visitors create two sounds from either side of a stringed instrument, which are dispersed to a drawing station, six resonators, and two mirrors with a laser. At the drawing station, the sounds make two rods oscillate, converging with a pen that inscribes their rhythmic movement on a rotating piece of paper in the form of a spiral. Concurrently, the sounds travel to the six resonators, which reverberate tones determined by their respective shapes. Lastly, two speakers are affixed with mirrors that vibrate either vertically or horizontally with the sound. A laser bounces from one, creating horizontal vibration, then to the other, creating vertical vibration; their combined movement is projected onto the wall as a green laser drawing, tracing the same vibrations as recorded on the table. We've already worked out the 'how' in this project, but the motive remains a problem. So sometimes it's the other way around.

The instrument that we've now built and tested looks like a big grasshopper. It's essentially a resonating space. It's a fascinating setup, but owing to the lack of the 'why', we've put the project aside for a while.

Doesn't this project also prove that owing to the interference of other specialisms, art too is subject to increased complexity? Is art becoming information rich?

It first and foremost shows that even small fields of research can play

a big role due to the acknowledgment of their increased complexity. My string-based instrument, the study of CAD drawing programmes and their spatial implications, and other minor but focused research areas tap into more general inquiries about spatial perception and our relations with physical space. This in turn has consequences for our understanding of urban space. Another example is colour perception. Colour perception is physical. It's not only about taking in colours but also about linking them to our experience of space. Until ten years ago, colour perception was considered a sort of automatic, objective phenomenon. But the fact is that colour perception, being extremely subjective, has psychological and emotional implications. According to neurobiologists, colour is not a property of the things in front of you, but a product of our brain. We can use that fact when developing the 'programme' or agenda for a particular building. Suddenly we have a situation in which we can apply knowledge from the natural sciences to the design of a space. The use of one colour next to another is not only a formal matter, but also a question of the cultural understanding of colour. So when I'm busy with research, I try to absorb these different fields of knowledge, just like artists did six hundred years ago.

Is what you add to the traditional working method of the artist, the forms of collaboration with other disciplines?

It is, in any case, true that I work a lot with spatial specialists such as scientists, architects, and designers. At the moment I'm also working with a movement expert. He comes from the world of dance and has also been involved in robot research. When I have a question or a problem that I cannot solve myself, I look for a scientist, who can help me. This implies that I temporarily enter another field, where I may encounter a language or principle that can crystallise the essence of the problem. Then I take this knowledge back to my own field to do something with it. In contrast to what the media sometimes claim, this does not mean that what I do is scientific. I'm primarily interested in my own questions, not in science.

What's the aim of that way of working?

I have a strong desire to be connected to the rest of the world. The search for a 'why' is an important motive in that sense. That 'why' isn't a programmatic 'why'. Rather, it's a constant process based on a belief that it's useful to make art in the world of today. This has everything to do with the balance between thinking and doing that we discussed earlier. In order to change the world, it's sometimes enough just to throw something you're thinking about into it. I'm not saying that I'm always successful, but I believe that the artwork stands in relation to the world like a letter to a sentence. The letters make up a word that forms part of a sentence, which in turn forms part of a dialogue. In that way I'm convinced that making letters for words can have a real impact.

To arrive at those letters, words and sentences, you often make use of models. Could you explain their role in the process of

your art?

I always think in models. All my works, including what you can see in museums or in public space, are models. So it'd be wrong to assume that the waterfalls we recently made in New York were not models [*The New York City Waterfalls*, 2008]. They were models of waterfalls – but also as real as any waterfalls. It was real water falling. Within architecture and design there has been a tendency to view models as something outside reality, something you can play with, something changeable as opposed to real buildings and objects that are stable and fixed. But in my view, models are as real as everything else; looking at a model is also an inside activity. So there is no moment – or condition – in which the object is not a model.

Being very interested in introducing physical and time-related issues into my works, I see a potential in analogue models that show sequential principles very well. For example, the time it takes to walk through a house can in itself be a sort of sculpture (as I tried to capture in *Your House*, 2006). This is a 'Bergsonian' idea. On the one hand there's someone like Eadweard Muybridge, who, interested in chronophotography, takes photos of a man walking and says: 'This sequence of images depicts time'. On the other hand, Auguste Rodin would say: 'No, time is relative; movement can be expressed by a single body rather than a series'. In his view a sculpture itself is a reflection of time. Where Muybridge's photographs depict single, frozen moments of time, you can only experience Rodin's sculpture *The Walking Man* [c.1890–5] by walking around it. In Rodin's work, temporality becomes something you perform by involving yourself physically over time. The user is, in the end, the *createur*.

In order to move back and forth between models – to preserve the dynamics between them – I continue to keep time a central matter of inquiry. If reality presents itself as being timeless and static, you end up with a dogmatic model of utopian ideas. You end up with a *superbrand*. And as we probably agree, we've now reached the end of the *superbrand* era. We're at the beginning of relative reality! Here, temporality functions as a critical tool in our continuous recreation of our surroundings.

Implicit models

Stefan Devoldere



Madrid architect Juan Herreros was guest curator for the third edition of the Concrete Design Competition, a European competition for students with as main prize an international workshop, held this time at the International Arts Campus deSingel in Antwerp. So this summer Herreros and 39 students got to work diligently with concrete and the theme Implicit Performance. Siebe Bakker, organiser of the competition and workshop, and Stefan Devoldere, external guest during the final workshop presentation, asked Herreros how he looked back at the experience.

SD: Using the title Implicit Performance you asked students to explore the limits of concrete as a material, and to develop new materials or applications in which concrete plays an important role, though not the only role. What exactly does that mean?

In recent architectural history it's true that concrete has played an important role, though also an isolated one, as a building material. There are buildings made entirely of concrete, and there are buildings with a concrete structure, but between these two extremes there's not that much. Nonetheless, in architecture, perfect marriages are possible between materials (wood and brick, for example, or glass and steel). Concrete deserves a new, hybrid role in structural systems with other materials. The assignment of the 'hybrid condition' demanded that students create a new material by adding something to the concrete, by conducting a study of the properties of concrete. We asked the students to forget about the familiar properties of concrete, to draw up a list of new properties (for example those of steel) and to force these properties onto concrete as it were. To go beyond the image we have of concrete because of history and tradition. Then there was also the more implicit question of the nature of the project. How do you arrive at a synthesis of an architectural project? How do you bring elements together that, at first glance, don't seem to have much to do with one another?

SD: And did this result in interesting projects?

Absolutely. Some projects treat the surface of the concrete – very delicate work that experimented with the decorative potential of concrete by treating it over time with imprints and images. Other projects were more technical – first good steps in what could be an interesting development process. Essentially, there were two lines of approach. The first focused on the properties of concrete. The material remained more or less the same but acquired properties one doesn't normally associate with it. That could be a matter of scale (i.e. making small delicate things in concrete) or about a new textural quality because of surface or temperature treatment. The second approach was about trying to create truly hybrid materials. The students experimented with the material by mixing it in often ingenious ways with other elements and items like magnets.

SB: Do you think the students were really aware of the

consequences of their actions? Did they understand how they were working with the material, or is it more about an understanding that the tutors read into the results?

An interesting aspect of this whole process is about how architects work today. What role does research play in the design process? As a designer you sometimes have to stand back from the problems that are on the table so you can become receptive to unexpected results. Afterwards, and only afterwards, you think about the practical application. The students were forced to abandon the typical context of architectural issues and play an experimental game with materials. Only at the end did the purpose of it become clear by connecting back to the architectural process, to building, to the technical discussion or to the specific culture of the material. During the design process it is important to stop, take a few steps back and jump to one side. Switching gear between reality and fantasy is particularly fruitful. It's like playing in suspended time.

SD: Do you also make use of such an experimental field of play in your own practice?

Certainly. There are two things we always try and avoid in our office. The first is working from the general to the particular, because you then follow a strongly determined protocol that permits few options. The principle of starting a project from all possible angles is very important for us. We usually have three different departure points for the same project. One of them is technical – for instance the climate control inside a building. A second departure point could be the public space, and the third something very personal. The development of the project occurs by bringing those three lines together. A second aspect concerns references we use. Those are not the most typical sources of inspiration for projects. When working on a project we try to find similar situations – the same type of process or topic – in other contexts. Sometimes artists work on our projects, for instance, not because we want bits of art but to involve them in the thought process. We work together with sociologists and philosophers so that we have sparring partners who stand outside our specific context as architects.

SD: Do they help create moments of 'suspended reality' in the office? To escape from stereotypes?

In our office we sometimes ask staff to research something very specific related in some way, though not directly, to the project on hand. With a project team one works with reality, with facts and figures, but independently of all that one person can study the use of materials or a relevant visual language. He of course knows what we are working on – after all, he's in the same office – but he's still in an isolated position. And he knows that any results he achieves for a certain project can just as easily lead to a solution in another project.

SB: Should we therefore have invited a philosopher or a wallpaper designer to the CDC workshop? Was the situation during the workshop 'suspended' enough?

Of course you can always invite people from different disciplines, but it is difficult to anticipate that in advance. I would have loved a thorough discussion about the role of ornament in contemporary architecture, but I only realised that towards the end of the workshop. There was enough technical expertise available, but a philosophical discourse can also prove useful. Why not invite a marketing specialist to discuss how to communicate about a project? There exists a traditional system of architectural education that is based on reproducing the reality of building within the school. But it's impossible to create situations that students will encounter in their careers as architects. The reality is many times more complex. If you train as an athlete, do you constantly have to simulate the conditions of a real race? Or is it more useful to do more specific preparatory exercises? Those exercises are important, and involving outside parties can strengthen their connection to reality.

SB: The most realistic aspect that students confronted during the workshop is working in teams, which many of them had never done before. Do you think that this is useful or an impediment because it's time-consuming?

That's very much part and parcel of the process because it creates an environment for discussion.

Architectural practice is increasingly becoming a participative activity that involves many people. Architecture students have to learn how to steer a discussion successfully. After all, the discussion *is* the project. The traditional structure in which all sorts of satellites gather around an autonomous project is no longer relevant. An architecture project begins from the moment that the contract is signed, and you have to get everyone around the table straight away. The discussion situation is important. It's a hybrid form of taking decisions supported by many small contributions. Twenty years ago the metaphor of an orchestra conductor was used to explain the role of the architect, but in the meantime some of the musicians have become well-known faces. Some, like Cecil Balmond, have even become stars. Now the orchestra leader is someone who collects information and processes it; he's more of an antenna that chairs the discussion. In that sense workshops are very important in education. They are not an attempt to recreate an existing reality; rather, they imitate a future condition. An architect should not only be able to deal with such situations but also should not be afraid to induce them. Situations in which you lose your privileged position and mix your work with that of others. By broadening your frame of reference you can develop yourself further.

SD: Could you see the CDC workshop as a project inside your own office?

I'm involved in three main activities: education, research and professional practice. In each of the three I reproduce the schemes of the other two. The CDC workshop is therefore a form of training so that I can function within my own office. It's not just the students who learn. As an architect with an established office you have to

learn not to become too personally involved with the work. You have to learn to listen and create some distance from it through the involvement of other people.

SD: And what did you learn about concrete as an experienced architect?

What I've already learned is to be more open about concrete and not eliminate it too early as an option for a project, just because it's based on dry construction. I'm not talking here about prefab solutions but about the use of concrete as an industrial building element or building system that possesses its own lightness and availability. So it's not just useful for underground car parks (laughs). In a number of recent projects at our office concrete has been included in a hybrid building system.

SD: What do you mean exactly with that building system? And in what sense is it hybrid?

A system is a collection of rules that make decisions possible and avoids particularities. For Inaki Ábalos and me the system replaces the almost pornographic fascination for structural details. It is therefore not only a structural system but also a collaborative whole that also includes façade components for example. Up to now the elements of such a system – lifted straight from the catalogue – were familiar friends already. Right now we are trying to incorporate more diverse elements into such a system. Concrete was usually not included because it wasn't 'dry' enough or not flexible enough, or because a building junction with concrete always requires a detailed drawing. In the meantime, more and more elements are creeping into those systems – the work of artists as I said, odd materials like concrete, or more contemporary concepts such as the story of ornament. Such a system needs to be spatial, functional, programmatic, visual, and of course structural and technical. It's a system of architectural ideas and approaches that can be deployed immediately. It takes advantage of the idea of architecture as infrastructure. You do not design down to the smallest detail but you aim for a broad, scientific approach that can be taken over.

SD: You already explained how the workshop relates to architectural education and to architectural practice. How do you think the Concrete Design Competition relates to industry?

I don't think the results of the workshop are really applicable in the concrete industry. Research within the industry goes much further. But what's important is the creation of a common platform for discussion between industry and education. If the sponsors listen in during the workshop discussions, they might well find inspiration for their research. Not much research is currently conducted into the theme Implicit Performance. But the principle of forgetting what you know can also yield good results for concrete manufacturers. And an open discussion with students can help. The competition produced many Brasilia remakes and monumental concrete structures. Concrete wasn't deployed in a very contemporary way. In the

workshop you saw how the students were trying to liberate concrete – by transforming it into a light material, by making delicate objects in concrete, by working with ornamentation, by going beyond the nostalgia of concrete.

SB: How can the workshop improve?

Looking back, I think that the workshop can produce some fantastic surprises. It was possible to deal openly with materials, forms, themes. And the result was a highly diverse collection of projects. What would be interesting for the next workshop, I think, is if the students were to work together on one collective object. In concrete of course, because many students have never previously been able to work with the material, far away from the computers they use every day. To discover that opening AutoCAD is not the only way to start a project is a very valuable lesson. So, too, is the experience of pouring concrete, letting it harden and removing the formwork. That is essential, for it's an enigmatic aspect of the material. But one collective object, proposed by the curator, could be good because it could strengthen teamwork. The principle of 'suspended time' remains essential of course. It liberates the students from the pressure of having to come up with a result and places emphasis on discussion, on argumentation, on discovery.



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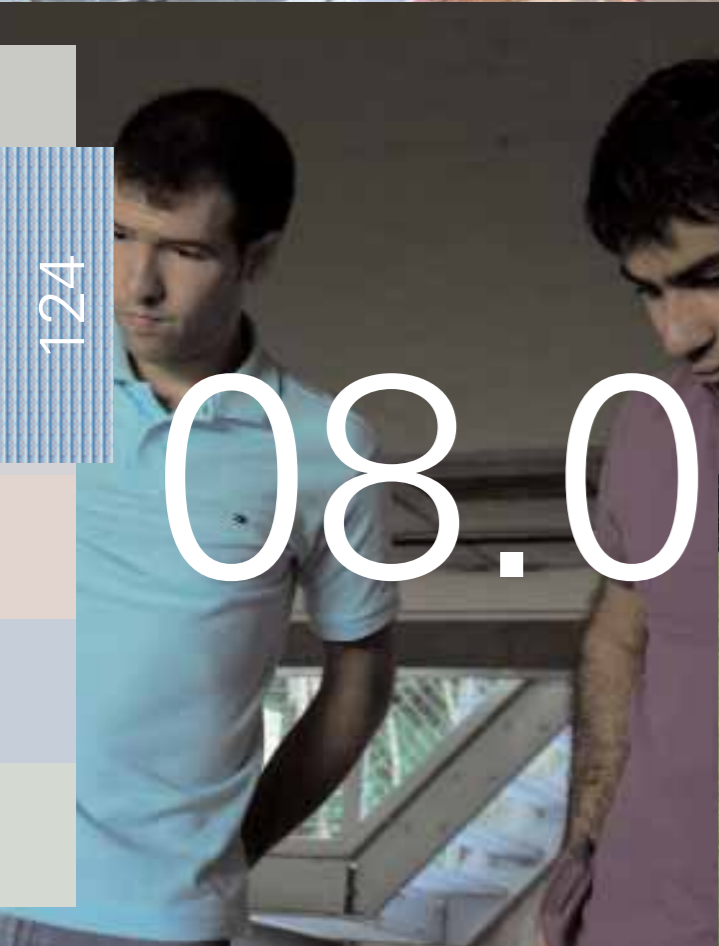




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Group 1

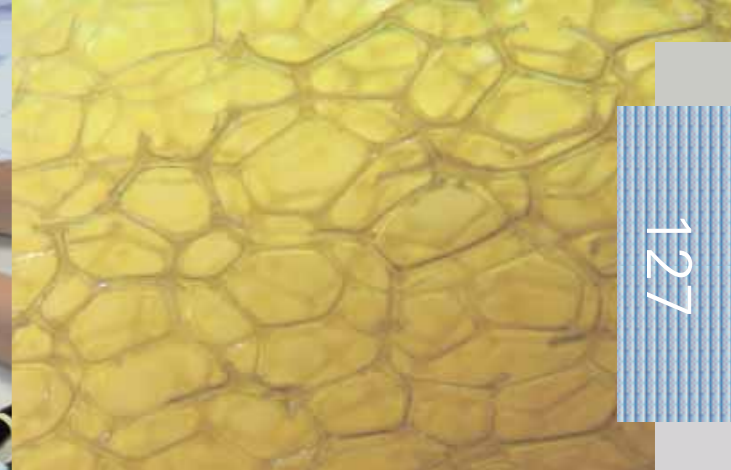
Interactive Concrete

Ayse Bozkurt
Barbara Grassl
Eduardo Tajuelo del Rosai
Irfan Ertis
Sasha Smolin

Group 1 took on the seemingly simple and straightforward assignment for the master class in a true investigative manner. After the introductory lecture by Juan Herreros and a morning long general brainstorm session on Implicit Performance, they decided to explore possible manners in which man can interact with concrete. Or better still, how concrete objects can be designed, altered and complemented with other materials and systems in such a way that the normally inanimate architectural objects like walls and columns get transformed into elements that offer a collaborative and interactive character.

Starting out with a very wide-ranging field of investigation labeled 'environmental filtering' they envisioned concrete elements that can manage a clean and clear environment. Filtering air, light and sound. In order to test their assumptions they produced a series of concrete elements containing unusual additions to the aggregates as cork and insulation foam. Inspired by the formal qualities of sponges they tested the possibilities to use a very coarse sponge as the structural core for concrete elements with the same 'open' form.

These series of test objects evolved in a focused continuation of their research exploring the coexistence of concrete and glass pots. Their final model shows convincingly that walls containing these additions can become transparent or offer implicit storage spaces and habitats for plants. Adding lids to the pots either magnetic or not even extends the possible uses from pasta storage to fish tanks.





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Group 2 Movement

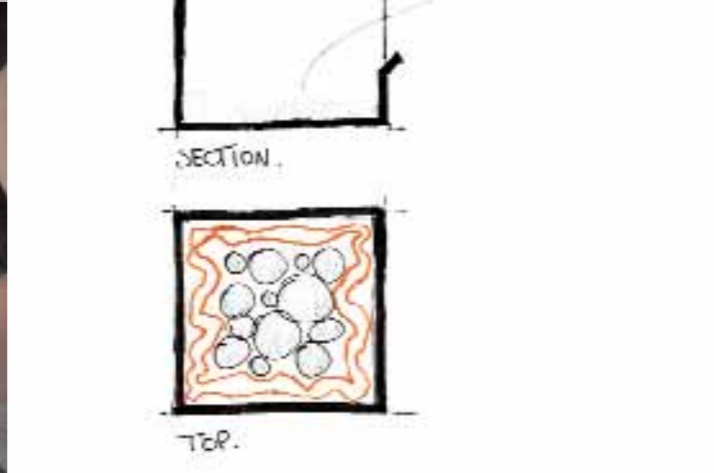
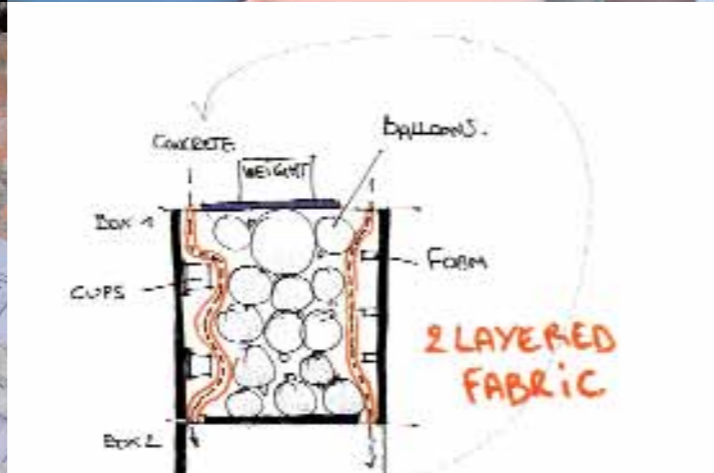
Erme Can Korkmaz
Felix Wurst
Hans Ooms
Lucy Riordan

Differently from most other groups group 2 focused its research not primarily on the pure formal qualities of hybrid-concrete elements or new forms of usage. They concentrated on the specific ways in which concrete objects are produced. Convinced that the use of traditional formwork limits the possibilities of developing hybrid systems they looked into other manners in which fluid concrete mix is fixed in place producing a concrete product.

Specifically they focused on non-static or non-stable materials and systems to use as formwork. Or better stated they devised systems that actually produce forms that are not predefined but only get their shape during their production. The systems are based on the hardening process of concrete as well as on the absorbing properties of fabrics. The fabric moves when concrete is poured through them and gets fixed in place when the concrete mix start hardening. It functions also as reinforcement and in the finished objects it plays a defining role in the texture of the surfaces.

Various tests explored different manners in which the free movement of the fabric is more or less contained, a totally free placed piece of fabric will just flatten under the pressure of the fluid concrete. The use of balloons formed a perfect addition to the form-giving-formwork. Balloons have a non-fixed form consistency as well, thus maintaining the conditions for producing objects that have to shape themselves. Other production systems are based on different ways the fabric is suspended in a wooden formwork box. The ultimate experiment based on movement is the system in which the fluid concrete mix is poured through a double layer of fabric, the concrete that did not stick to the fabric is collected and is poured again through the fabric. The final results all appear to be objects frozen at an arbitrary moment in their process of continuous movement.





Group 3 Magnetocrete

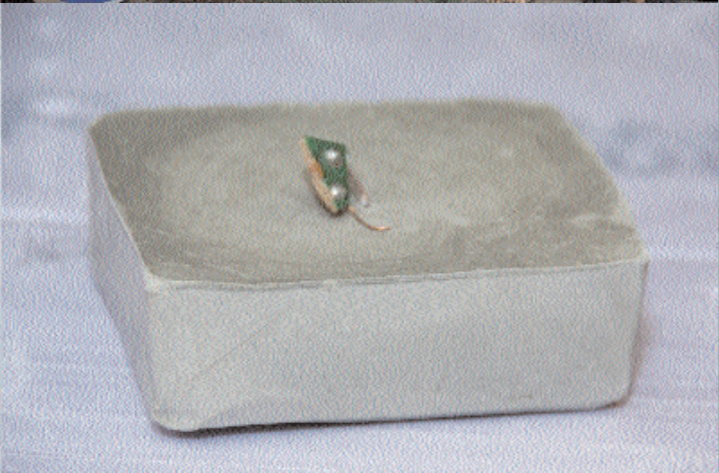
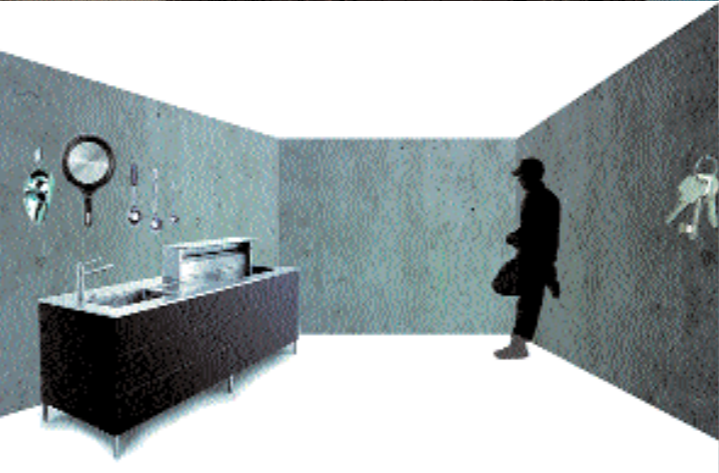
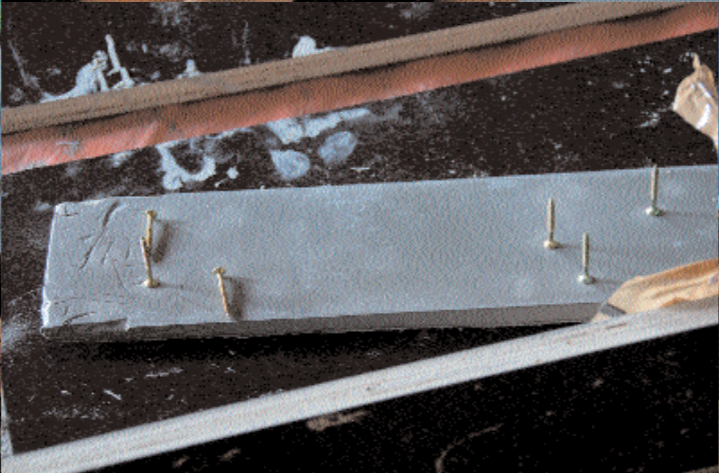
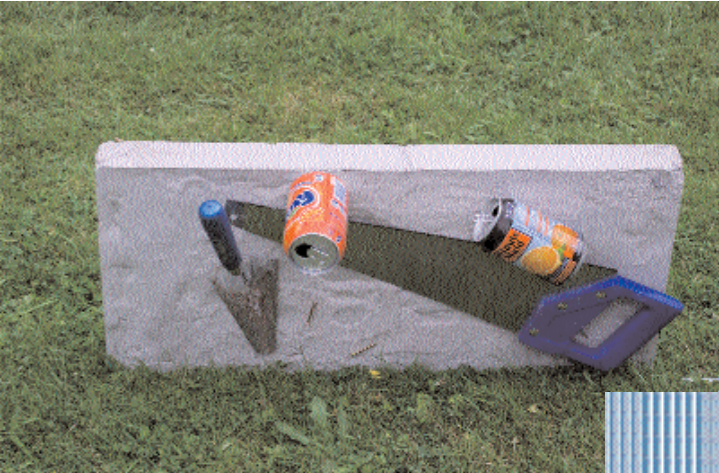
Eleonora Massaccesi
Juliane Greb
Róisín Aherne
Yü Chen
Zeynep Erdiñç

Fascinated by the specific properties of magnets group 3 investigated both the practical applications of magnetic concrete and the manners in which one can produce concrete elements with sufficient magnetic forces. Besides which they contemplated and tested the possibilities of deploying magnetic fields in formwork systems directing iron rich concrete mixtures.

Where concrete is static, unchangeable and immovable, magnets are reactionary and energetic. A seemingly perfect starting point to develop a true hybrid system. Several tests gave insight in the exact placement of magnets in concrete elements, close enough to the surface not to have the intensity of the magnetic fields too much reduced. Pragmatic considerations led to various patterns in which the magnets can be placed, from randomly placed to strictly arranged in matrices, or grouped together at specific locations related to the use of a space. Furthermore experiments were done with electromagnets introducing the possibility to switch on or off the magnetic property of a concrete element.

In accordance with the focus on the practical potential of their products group 3 produced a series of convincing and seductive scenarios for the implementation of magnetocrete. From implicit kitchen utensil to environmental friendly waste-collecting-highway-walls. Making concrete attractive!





Group 4 Conwax

Gereon Töpper
Jamie Doak
Paolo Borghino
Stefano Cerolini
Wouter Dreessen

Inspired by the beauty of the human body group 5 searched for ways to create shapely, perhaps even voluptuous, forms in concrete. Rather than simply shaping a fixed formwork into the desired forms they looked for a system that would produce unpredictable forms within a certain range of possibilities.

Their research into the use of wax as main formwork material led to a much wider field of investigation than bodily shapes alone. While wax as well as concrete exist in both fluid and fixed states, in contrast to concrete this phase changing property in wax is reproducible. The hardening process of concrete is a chemical and definite process where the state of wax is dependant on temperature. Faced with a seemingly unlimited amount of possibilities to develop hybrid products and systems with wax and concrete group 4 focused on testing various ways in which both are mixed and shaped. Furthermore, their experiments show series of elements in which the wax is removed as well as products in which the wax becomes a permanent feature.

Wax can be melted to shape a form or formwork. Heat, gravity and viscosity are in these cases the defining factors. Tests have been done on shaping the form of the wax before the pouring of the concrete, during the pouring and even after the concrete had been poured. From another starting point various test with different sizes of pieces of solid wax mixed through the concrete micture show the potential of this system to produce 'organic' shapes.

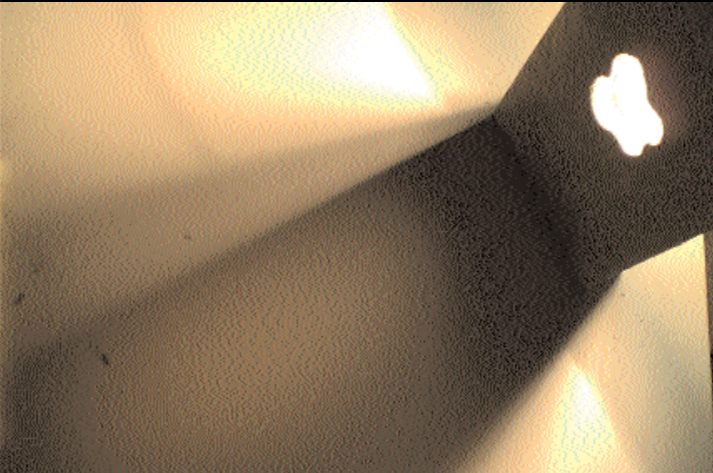
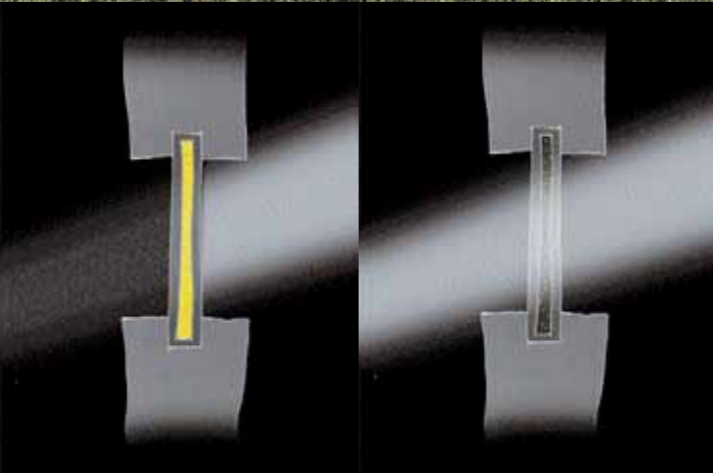
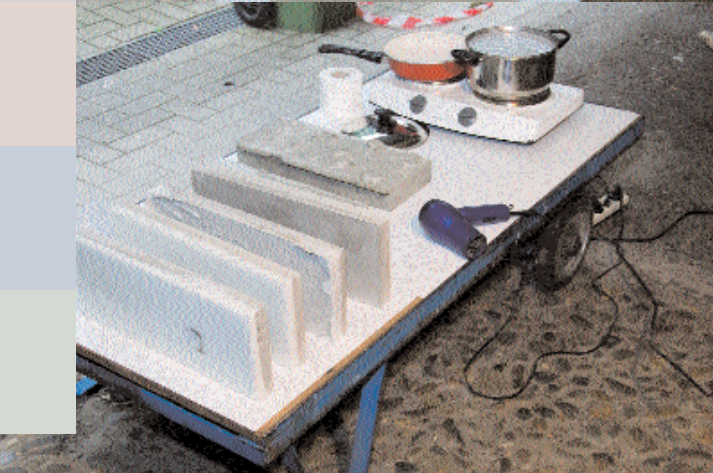
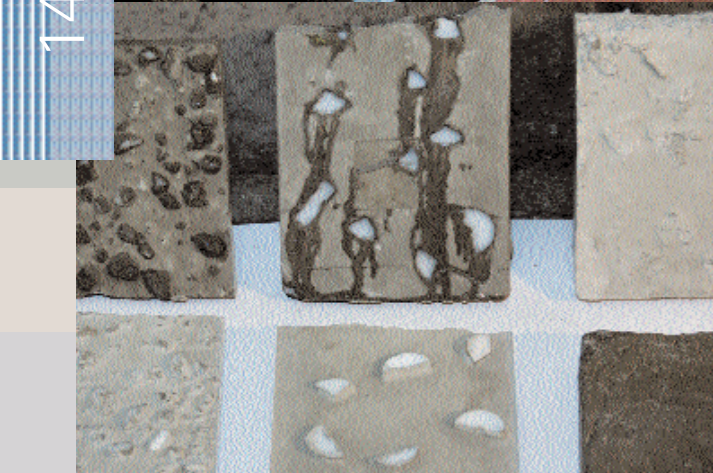
Finally their tests concentrated on unveiling practical applications of concrete-wax hybrids. These ranged from improving insulating properties to transparent features that depend on the availability of sunlight or warmth.





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Group 5 Könkrät

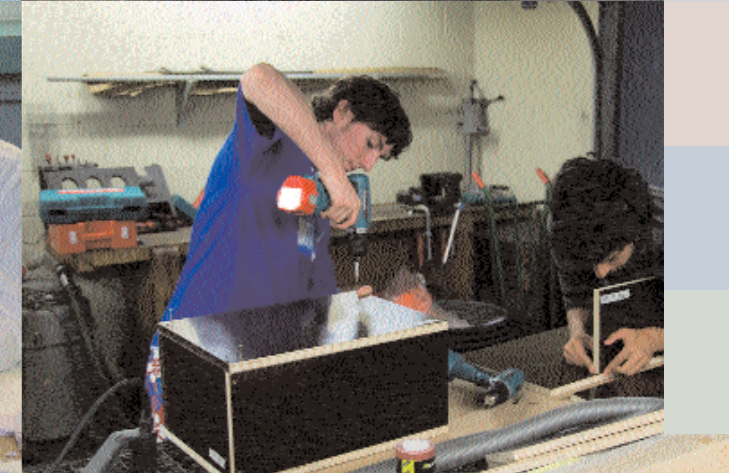
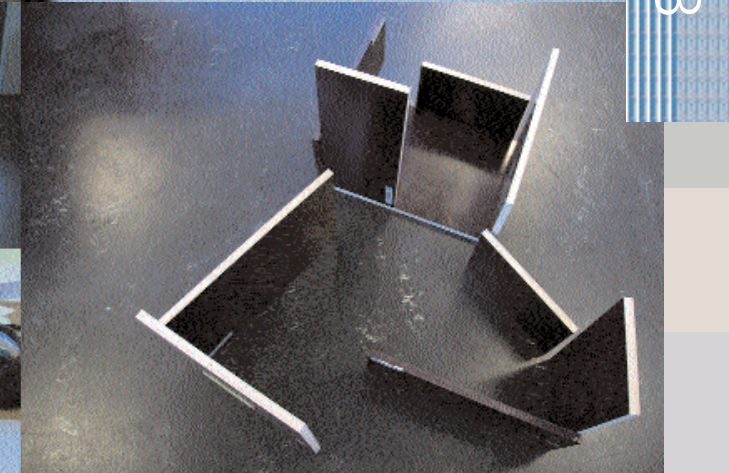
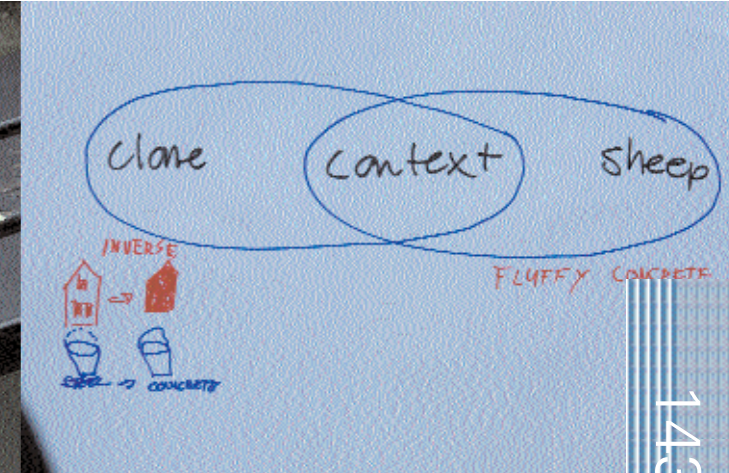
Benedikt Krienen
Daniel Patterson
Ege Özgirin
Karmen de Maaré
Radim Louda

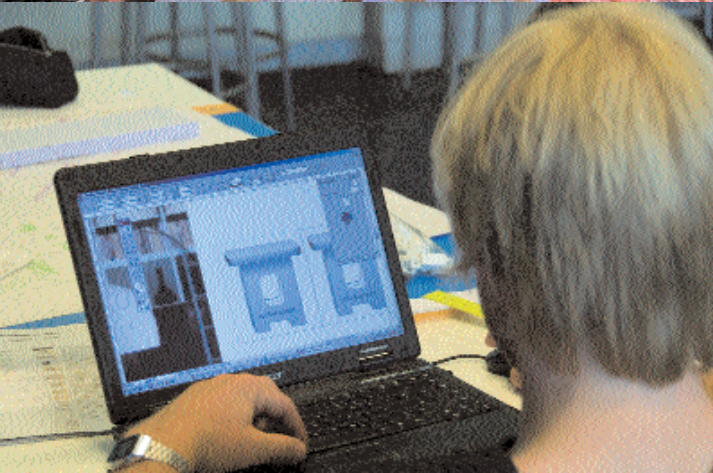
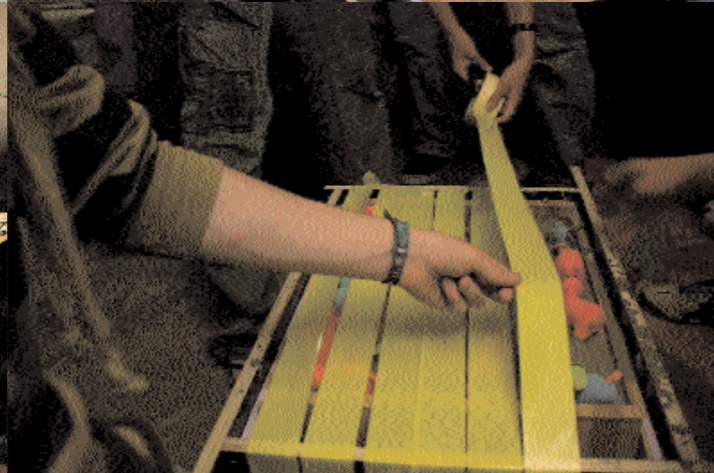
Group 5 had set as goal to bring concrete to a much wider and new market. 'Do-it-yourself' instead of prefabricated or professionally produced concrete products. Bringing a complex manufacturing system into a package that is simple to use and offers to any consumer the possibility to built his or her own robust and sustainable products.

Labeling their idea as IKEA's new product line 'KÖNKRËT, gave them the lead to project their vision in a feasible and convincing context. Not only did they tap into IKEA's concept of assembling the products yourself, seemingly reducing the production of concrete elements to a mere assembly of prearranged materials, they enthusiastically embraced many of IKEA's characteristics as provider of low-cost, high volume household items.

Concrete should be available to many consumers. Preferably without interference of professional technicians and manufacturers. The end users should be able to directly manage the supposed formal freedom of concrete. Concrete should overcome its character as rough, grey and heavy used mainly as construction material, it should be introduced in the daily lives of people in objects they can manipulate and interact with directly.

The IKEA formula also introduces the reuse of the packaging material as production element. The carton boxes become the formwork. In this they even surpass their inspiring model in terms of environmental aspects. All in all, KÖNKRËT is more than a stool, it represents a transfer of concrete from the professional realm to that of the consumer. It opens a market, up till now invisible or unreachable for the industry. It brings concrete to the interior on a level far exceeding the table-book examples of star architects.





Group 6 Aging

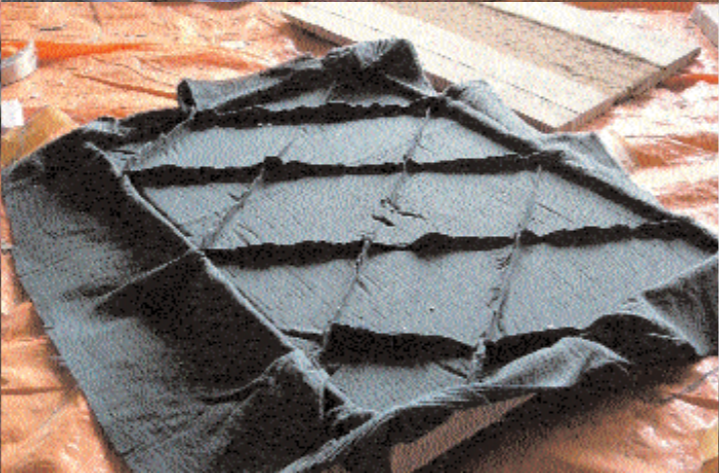
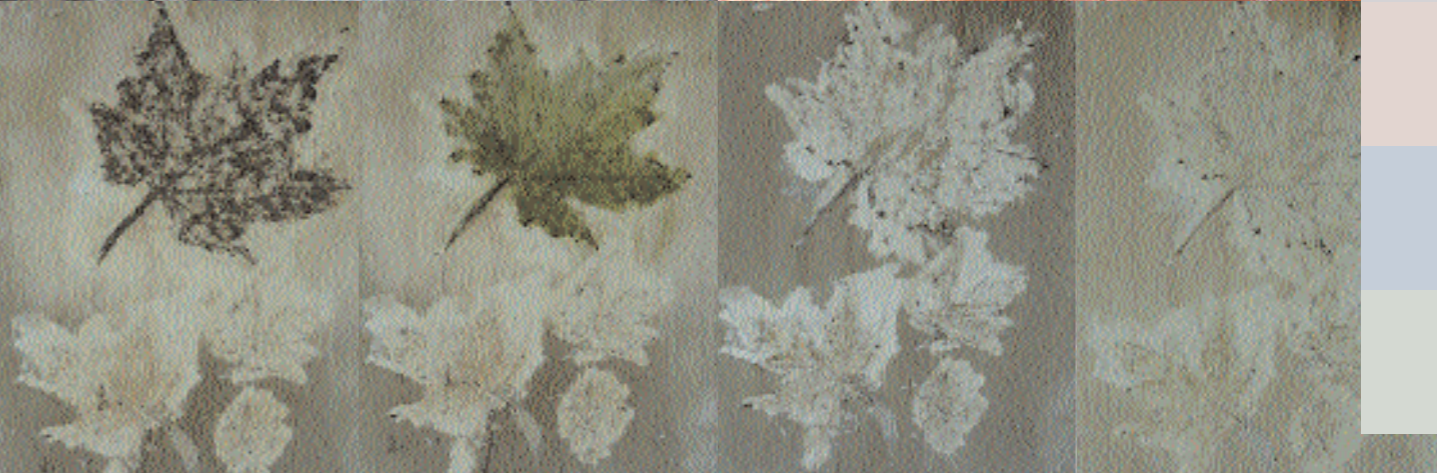
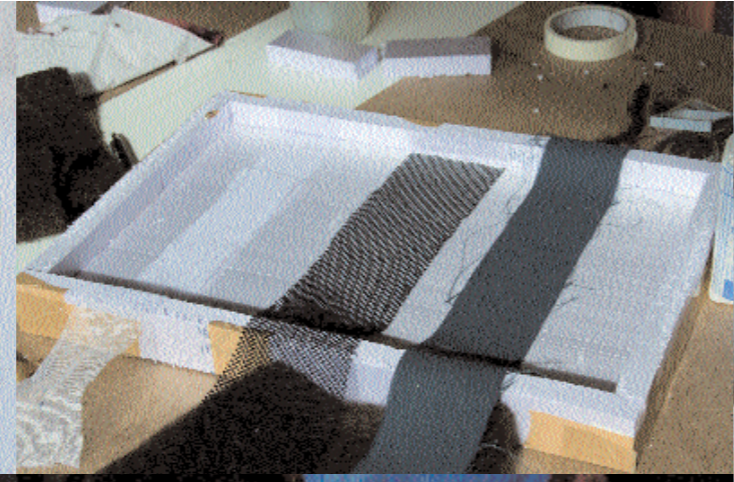
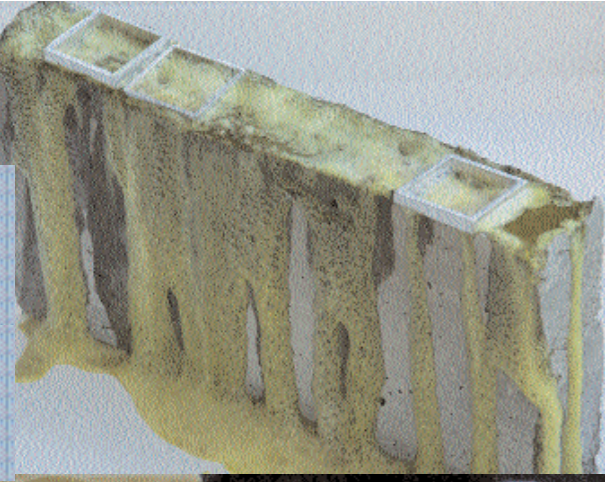
Åse Flindall
Diego Cayuelas Garcia
Fatma Aliosman
Gertjan Rohaan
Marcos Belmar

How to embrace the unavoidable aging process of concrete surfaces? We all know the unavoidable influences of environmental conditions on buildings. For concrete this often means a negatively interpreted transformation of surfaces into a dirty looking, randomly affected end result. How can the processes of decay be controlled or directed in such a way they will be perceived as enrichments. How to age concrete elegantly or coarse, and make it more than acceptable, even desirable.

One of the main factors of the decay of surfaces is rain. Rain contains dirt, dust and chemical components picked up in the environment. These elements are absorbed in the essentially porous surface of concrete. However it seems possible to prepare the surface or parts of it to either absorb more or less contamination. This system can be managed such that under influence of contamination or water, a concrete surface can unveil certain patterns. This unveiling could be recurring; a wet pattern and a dry pattern. Or it can slowly and irrevocably appear; only after years of being subjected to contamination changes become visible in the color or reflection of a surface.

Group 6 also looked at formal and programmatically interventions that celebrate the aging of concrete. Reliefs and 'natural' designs on the surface can manage the absorption of water and contamination. Certain levels of porosity or specific forms can form a habitat for plants and mosses. 'Aging' embraces the unavoidable while offering methods for architects to remain to a certain extend the director of the final outcome.





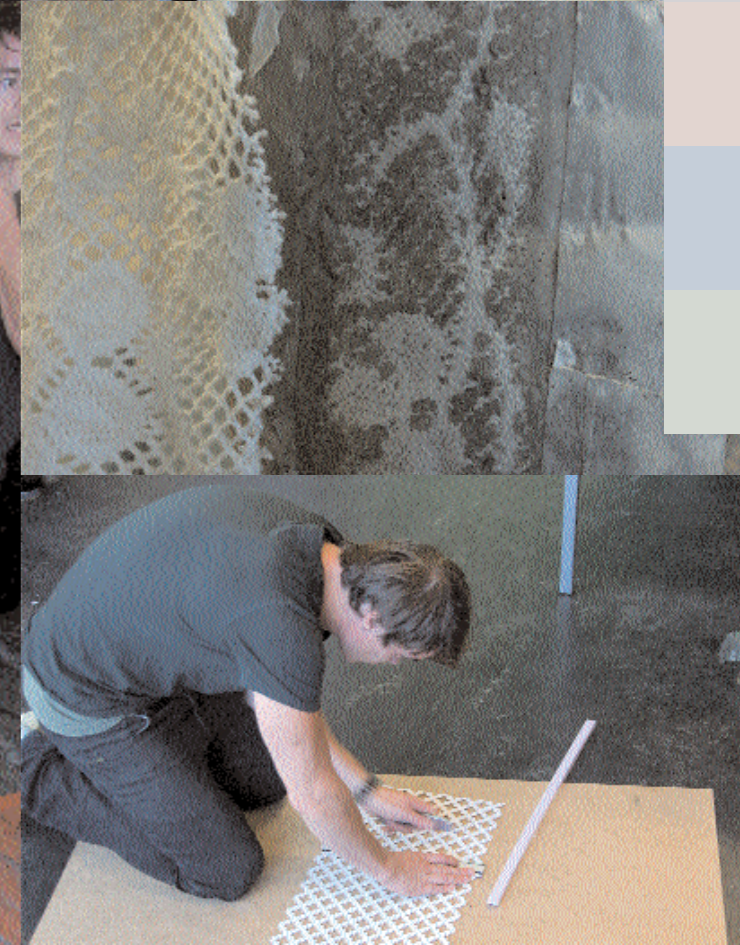
Group 7 Kantcrete

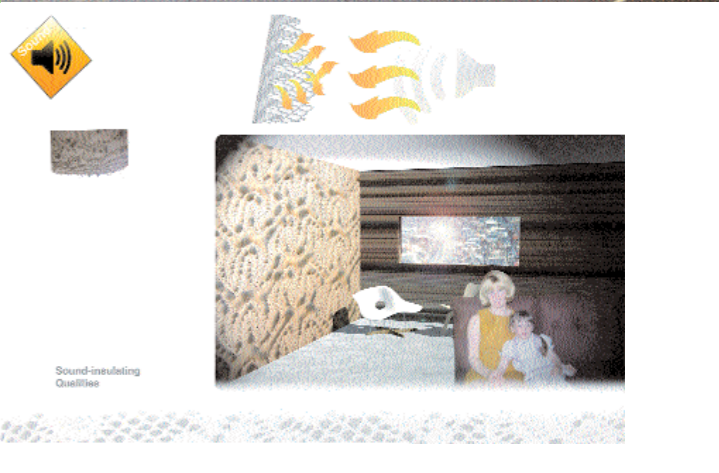
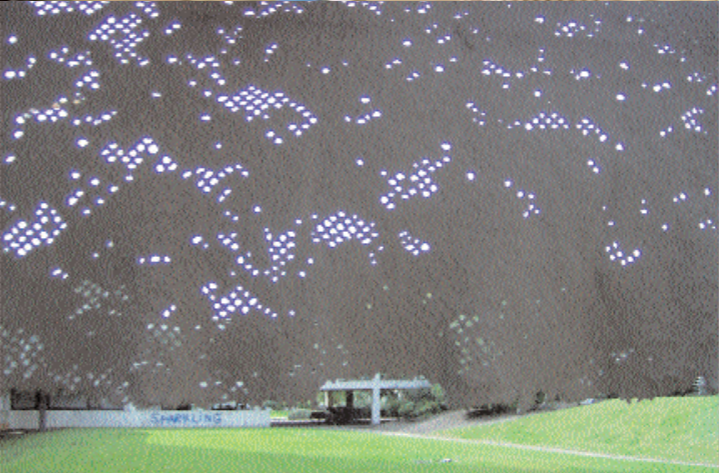
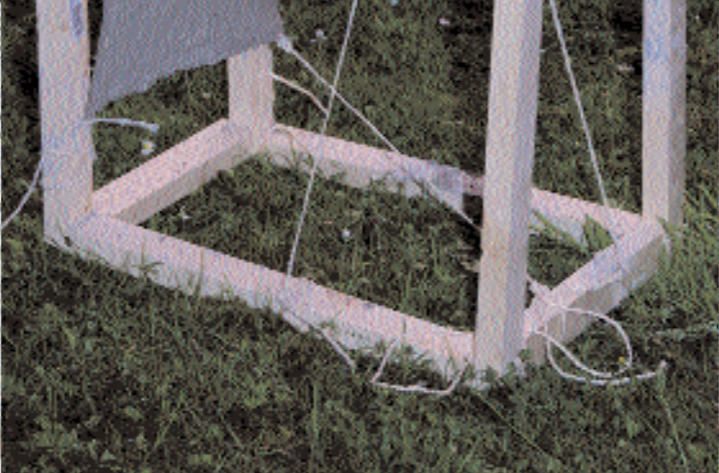
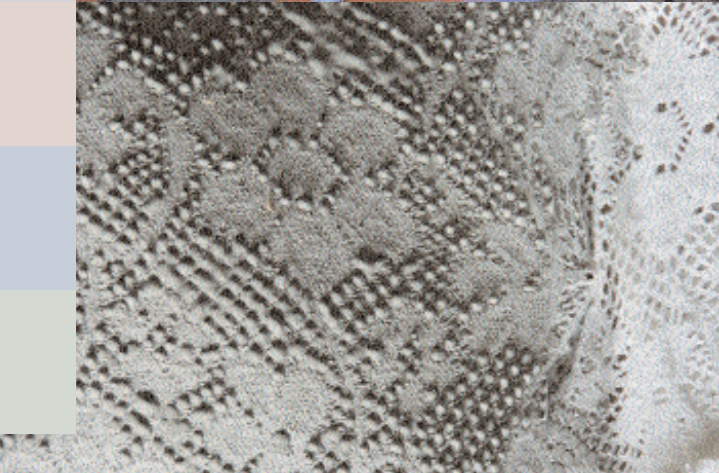
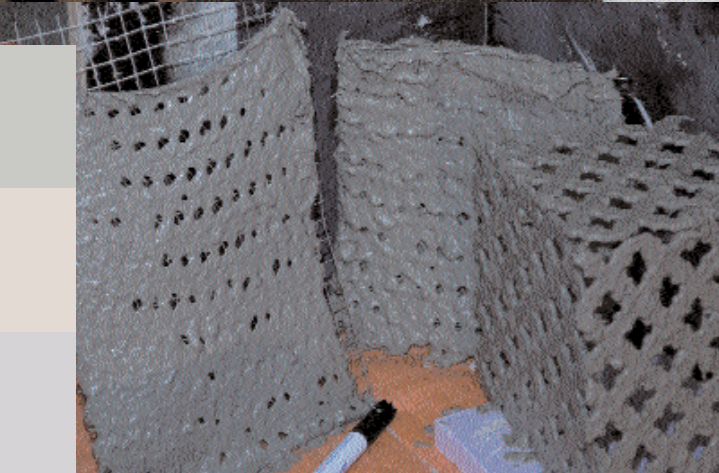
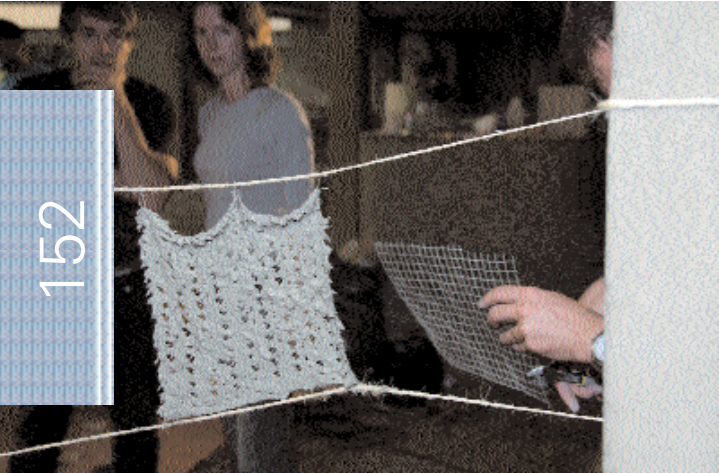
Alper Kanylimaz
Fredrik Sund
José Maria Martinez
Kadir Öztürk
Rikje Maas

'After the Belgian Chocolate and the Belgian French Fries, Belgian Lace is a very well known product of Belgium. When we decided to work with Textiles + Concrete – we were looking for sexy, sensuous, tactile fabrics – we chose the Belgian Lace for its qualities and connotations.'

Group 7 took on a very productive, convincing and seductive path of investigation when stating their ambition to combine the very transparent, fragile and sexy Belgian lace with the hard, solid and heavy concrete. They attempted and succeeded in producing a concrete that is as sexy and delicate as lace, while maintaining its 'normal' characteristics. They showed that those properties not normally associated with concrete are actually implicitly available. One only has to liberate this potential.

It is exactly the research in how to liberate the fragile and sensuous nature of concrete that produced a vast amount of prototypes. Many versions of similar methods of production were made. And many different production methods were tested. Should the lace be visible; on top, in, or under the surface of the concrete? Should the lace remain in place, or be burned away? Should the concrete be as thin as the lace itself, becoming transparent by just cladding the open structure of the lace? Thus becoming literary transparent. Or should the qualities of lace be found in a totally different manner? The lace-concrete hybrid can bring the quality of fare-faced concrete to quite another level. For interiors as well as exteriors.





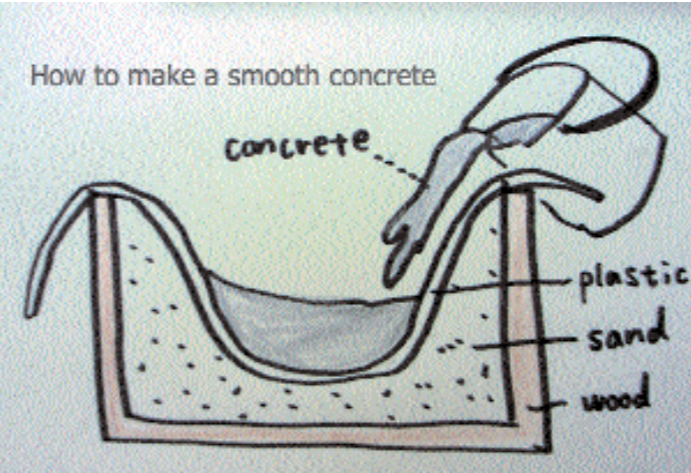
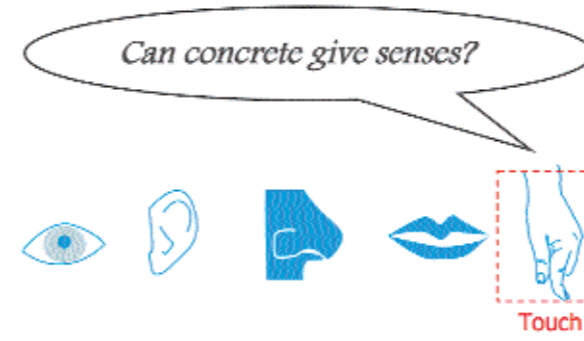
Group 8 Sensible Concrete

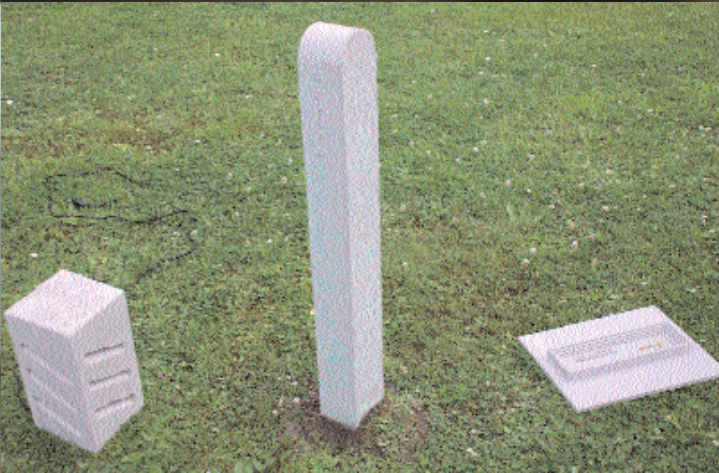
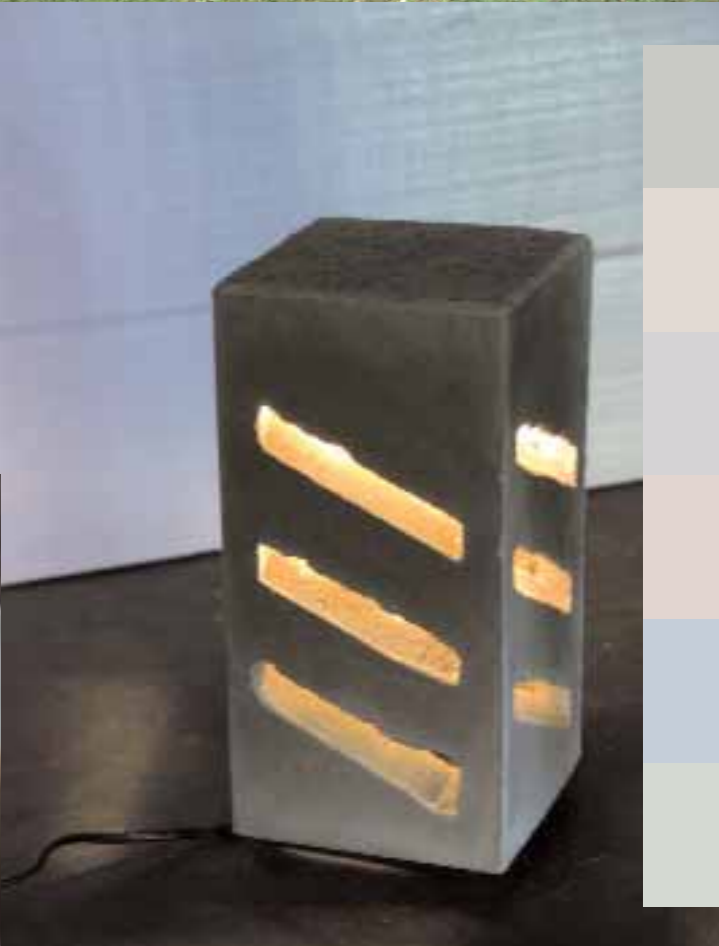
Thuy Vu
Ryoko Ikeda
Santiago Varela Rizo
Halidun Senkal
Tolga Tutar

Group 8 investigated the ways in which we can perceive and experience concrete. Not only by vision and touch, but by entertaining all our senses. Differently from other groups they did not take a specific combination of materials or systems as starting point exploring the potential of this hybrid. Rather, they predefined their goals in terms of how a certain hybrid should perform and investigated how this performance can be obtained.

Deploying pigments, essences and various formwork materials they produced prototypes focused on each of our senses. Concrete with specific smells can add to the atmosphere of certain spaces. Concrete with fluorescent additives can function as beacons when the available light is minimal.

Group 8 shows us that material objects can become much more intense and even much more functional when properties are included that normally are not available to the realm of architecture. Just form and function are not sufficient, or at least a wide range of possibilities to create space and atmosphere are missed when the potential of sensible concrete is not embraced.





Colophon

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Curator

Juan Herreros Herreros Arquitectos

Initiative and organization

International coordinator

Belgium FEBELCEM Jef Apers

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Ireland	Cement Manufacturers Ireland	Brendan Lynch
Italy	A.I.T.E.C.	Maria Teresa Briotti
Netherlands	Cement&BetonCentrum	Hans Köhne
Norway	Norcem	Kristin Kvisvik
Spain	IECA & Oficemen	Carlos Jofré
Sweden	Cementa AB	Anita Stenler
Turkey	TCMA	Çaglan Becan

Consultant / coordinator

bureaubakker Siebe Bakker

Graphic design Implicit Performance

Manifesta

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Guy Châtel, SSA/XX
Iwan Strauven
Jean-François Denoël, FEBELCEM
Jens Richter, Juan Herreros Arquitectos
Katrien Vandermarliere, VAI
Klaus Bollinger, Bollinger + Grohmann
Manfred Grohmann, Bollinger + Grohmann
Marina Scherps, FEBELCEM
Michael Braungart, EPEA Internationale Umweltforschung GmbH
Olafur Eliasson, Studio Olafur Eliasson
René Boomkens, University of Groningen
Stylos, Technical University Delft

Competition

National Juries

Belgium

Adrien Verschuere
Dirk de Meyer
Kersten Geers
Manuel Rocha de Aires Mateus
Olivier Bastin
Rob Nijssse

Germany

Fortunat Dettli
Hilde Léon
Philipp Oswald
Stephan Engelsmann

Ireland

Joan McCoy
Seán Mahon - chairman
Seán Moylan
David Smith

Italy

Angelo Torricelli
Camillo Nuti
Carmen Andriani
Francesco Cellini
Gabriele Del Mese
Marino Folin

Netherlands

Alex van de Beld
Caroline Kruit
Jan Versteegen
Maartje Lammers
Maurice Nio - chairman

Norway / Sweden

Bente Kleven
Geir Johnsen
Hans Bruun Nissen
Johan Silfwerbrand
Jonas Bohlin
Torben Dahl

Spain

Aniceto Zaragoza
Juan Carlos López Agúi
Manuel Burón

Marta Malé-Aleman
Mike Schlaich
Salvador Pérez Arroyo

Turkey

Atilla Yucel
Deniz Güner
Ihsan Bilgin – chairman
Nevzat Sayin
Sebnem Yalinay-Cinici

National Awards

Belgium

Berten Vandael
Hans Ooms
Radim Louda
Wouter Dreessen

Germany

Barbara Grassl
Benedikt Krienen
Benjamin Kinzinger
Daniel Gross
Felix Wurst
Gereon Töpfer
Juliane Greb
Jürgen Utz
Lukas Kasten
Yü Chen

Ireland

Daniel Patterson
Darren Andrew Cameron
Jamie Doak
Lucy Riordan
Richard Andersen
Roisin Aherne
Sasha Smolin
Scott Todd

Italy

Alper Kanyilmaz
Andrea Garzulino
Ayse Bozkurt
Elena Ciapparelli
Eleonora Massaccesi
Fatma Aliosman
Paolo Borghino
Stefano Cerolini
Tolga Tutar

Viola Bertini

Netherlands

Gertjan Rohaan
Karmen de Maaré
Rikje Maas
Ryoko Ikeda
Thorsten Schneider
Wouter Notenbomer

Norway / Sweden

Albin Holmgren
Åse Flindall
Fredrik Sund
Joakim Haglund
Thuy Vu
Ullrica Johansson

Spain

Diego Cayuelas Garcia
Eduardo Tajuelo del Rosai
José Maria Martinez
Marcos Belmar
Santiago Varela Rizo

Turkey

Ahmet Irfan Ertis
Ege Özgirin
Emre Can Korkmaz
Halidun Senkal
Kadir Öztürk
Zeynep Erdiñç

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Master Class

Master

Juan Herreros, Juan Herreros
Arquitectos – architect

Tutors

Angel Borrego, Open Source Space -
architect / artist

Ifke Brunings, SOAP Ateliers - structural
engineer

Jacobo Garcia German,
jacobogarciagerman arquitectos – tutor
– architect

Jasper Westebring, Westebring
architecten - architect

Patricia Hessing,

SOAP Ateliers - architect

Siebe Bakker, bureaubakker –
coordinator / architect

lecturers / critics

Arjan Habraken, Arup Netherlands –
structural engineer

Enric Ruiz-Geli, Cloud9 - architect

Guy Châtel, SSA/XX - architect

Kersten Geers, Office Kersten Geers

David van Severen – architect

Luc Tearwe, University Gent – concrete
expert

Peter Lieblang, FH Bochum – concrete
expert

Stefan Devoldere, A+ magazine - editor

Host

Jerry Aerts & Morirz Küng, deSingel

international coordinator / host

Jef Apers, FEBELCEM – concrete
expert

support

Bart Braet, deSingel

Bernadette Scheerders, deSingel

Jan Geivaerts, deSingel – technical
support

Jan Wildiers, deSingel – audio-visual
support

Jasper Westebring – excursion / tour
guide

Karla Stessel, deSingel

Koen Slock, deSingel – catering

Leo Daems, deSingel – workshop

support

Lisa De Visscher - excursion

Paul Vermeir, deSingel – technical
support

Roeland Dudal - excursion

Torsten Förster, BDZ – concrete expert

photography & video

Aaron Hauptman, Brigitt Albers,
Charlotte Albers and Wies van Saus,
bureaubakker

additional contributions

FEBELCEM – dry mortar & formwork
materials

BDZ – Peter Lieblang

Book

Edited & produced by

Siebe Bakker, bureaubakker

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(introductions, interviews)

Billy Nolan

Interviews

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René Boomkens, Michael Braungart,
Ben van Berkel, Klaus Bollinger &
Manfred Grohmann, Olafur Eliasson
Stefan Devoldere, A+ magazine – *Juan*
Herreros

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...

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Brigitt Albers, bureaubakker

Charlotte Albers, bureaubakker

various Master Class participants

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International Concrete
Design Competition for Students
2007/08

implicit performance

'the objective of the competition: to explore and exploit the limits of the involvement of concrete with other resources to create **new construction materials and applications** where concrete forms the basis but is not the only element at play. It is therefore a question of finding conditions of compatibility and integration – we could say a "complicity" – between concrete and something else in order to create a new material or system that adopts other characteristics.

We look for concrete surpassing its "original" performance to the point of becoming a new material in and of its self with contemporary spatial and experiential consequences. Behind the collective work that the competition evokes, there is an interest of generating practical implementations of theoretical topics on architecture as the construction of a second nature or second life. Creating architectural applications and systems for a world that needs to seriously reconsider the material conditions with which construction and demolition takes places.'

Juan Herreros, curator

'The theme chosen by Juan Herreros and its expression as 'Implicit Performance – Exploring the Hybrid Condition' initially aroused consternation, but that soon gave way to amazement and surprise. It took a while before the industry had fully grasped the underlying richness of the proposed idea and realised that opting to explore the domain of the hybrid demonstrates so much insight and originality.

The result, as this book reveals, is astonishing. The theme obviously formed an almost inexhaustible source of creativity. The projects submitted by the students and the results of the master class show innumerable possibilities of combining concrete with other materials, ideas and the like.'

Jef Apers, International Coordinator

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