The International Concrete Design Competition for Students is a biennial ideas and design competition for students in architecture, engineering, design and affiliated disciplines. It is organized and funded by a consortium of European cement and concrete associations and open for students registered in an educational institute in one of the participating countries.

The International Concrete Design Competition for Students aims at promoting innovative design attitudes related to the use of concrete as a material and a technology. It is characterized by its format: each competition cycle is framed by a theme designating a specific property of concrete. Nationally chosen laureates are invited to participate in an international master class. This master class continues the investigation of the theme.

The International Concrete Design Competition for Students is material based. It focuses design attitudes towards material as a design-leading phenomenon. It does not prescribe ‘traditional’ design requirements like programme, location or typology. It asks participants to explore and exploit the potential of the material in a design-led environment. They are invited to approach the material from within its own merits and to push its potential to ‘realise’ developed ideas. It asks to present these ideas through design proposals. Ideas can only show their merits when they are applied. The choice of a design topic or programme is free. It should be chosen such that it presents the participant’s ideas as accurately as possible and can range from building details to large structures, landscape projects or building complexes.

The International Concrete Design Competition for Students is ‘open’ for adaptations. It’s character offers a platform for material research and design that can either be approached individually as a complete assignment or it can be incorporated within ‘host’ design and research assignments and thus becoming part of existing curricula.

The International Concrete Design Competition for Students is an initiative by a collaboration of European cement and concrete associations. Their aim is to promote innovative design attitudes related to concrete. They recognise that the use of concrete as an architectural medium shows room for improvements and development. They see the material not only as a means to ‘solve’ formal design ambitions. Material research and understanding will lead to innovative design and create possibilities for architects, designers and engineers to surpass existing limitations and visions.

The International Concrete Design Competition for Students also recognises the abundant energy, enthusiasm and potential of those studying architecture, engineering and design, the future professionals that will work with concrete. The cement and concrete associations are convinced this competition offers additional expertise alongside the regular education on materials students receive. In order to learn about and understand a material one has to experience and explore its properties, preferably in a design-led environment. This competition including its master class for laureates offers a unique opportunity to be part of future developments and to immerse oneself in conditions where materials are at the core of developments and design.
Concrete is often perceived as gray, dull and cheap. Indeed it is the most used construction material in the world and thus can be found in many places and applications where economics, speed, and simple and safe constructions are crucial. Nonetheless, concrete is also widely deployed to express specific architectural and aesthetic desires. Concrete’s nature of seamlessly copying the formwork in which it is made - in terms of shape and texture -, makes it an ideal material to create many different expressions. Varying from raw and rough ‘beton brute’, to sleek and slender high-performance structures and ultra-dense maintenance-free surfaces. Concrete provides designers with endless possibilities to create slightly varying repetitions with pre-cast façade elements, truly three dimensional spatially complex building components, and as many surface treatments and textures one can imagine.

**Tactility**

may be viewed as one of architecture’s main languages. We all recognize craftsmanship and beauty in cleverly detailed and exquisitely executed pieces of architecture. From sensual wall textures in the works of Ando and Chipperfield, to sturdy and revealing structures of Zumthor and Olgiati. The material, and especially the way it presents itself, might be as important as the work’s sculptural and functional presence. In the best examples, these ‘come together’ and reinforce each other. Material gives meaning to the work and the way it is perceived. When architecture is described as our third skin, tactility should be one of our first areas of attention. Material is where architecture meets our bodies, where the building interacts with our senses.

The 8th Concrete Design Competition on **TACTILITY** asks students of architecture, design and engineering to explore and exploit the potential of concrete’s properties with respect to any notion of **TACTILITY**. These can be related to inherent material properties, concrete’s production process, and its application in new or existing structures. They may address aesthetic desires, structural systems or fabrication methods and comment on economic realities, sustainability demands or social issues.

This competition does not prescribe a specific location or program; participants can choose a context of their own that supports their fascinations and ambitions and that fits an acute presentation of their ideas. Proposals may range from objects, furniture and architectural details, to housing, landscape interventions, complex buildings, infrastructure and structural systems. Competition entries need to address technical and functional aspects as well as formal and programmatic ones – ideas need to be tested through design proposals to convincingly demonstrate their potential. They will be reviewed on the combination of inventiveness in addressing the competition’s theme and architectural implications.

The 8th Concrete Design Competition – TACTILITY runs in three European countries during the academic year 2017 - 2018. National laureates will be invited to participate in a weeklong international workshop facilitated by the industry featuring renowned lecturers, experts and critics, further exploring concrete and tactility.
SOME REFERENCES ON TACTILITY
<table>
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<th>Project Title</th>
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<tr>
<td>Akka Art Gallery</td>
<td>Osaka, Japan</td>
<td>1988</td>
<td>Tadao Ando Architect &amp; Associates</td>
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<td>American Cement Building</td>
<td>Los Angeles, USA</td>
<td>1964</td>
<td>DMJM Architects</td>
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<td>Art Foundation Sachsen Anhalt</td>
<td>Halle, Germany</td>
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<td>Atelier Bardill</td>
<td>Scharans, Switzerland</td>
<td>2007</td>
<td>Valerio Olgiati</td>
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<tr>
<td>Atlantic Wall</td>
<td>Bray-Dunes, Dunkerque, France</td>
<td>1944</td>
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<tr>
<td>Bunker 599</td>
<td>Culemborg, Netherlands</td>
<td>2010</td>
<td>RAAAF</td>
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<td>Caltrans District 7 Headquarters</td>
<td>Los Angeles, USA</td>
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<td>Climbing Wall</td>
<td>Spaarnwoude, Netherlands</td>
<td>1992</td>
<td>Frans de Wit</td>
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<td>Fürstenwald Cemetery</td>
<td>Chur, Switzerland</td>
<td>1996</td>
<td>Urs Zinsli &amp; Kienst Vogt</td>
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<td>Das Gelbe Haus</td>
<td>Flims, Switzerland</td>
<td>1999</td>
<td>Valerio Olgiati</td>
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<tr>
<td>Haus 36</td>
<td>Stuttgart, Germany</td>
<td>2015</td>
<td>Matthias Bauer Associates Stuttgart</td>
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<tr>
<td>Kantine</td>
<td>Berlin, Germany</td>
<td>2013</td>
<td>David Chipperfield Architects</td>
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</tbody>
</table>
Kunsthaus Bregenz
Bregenz, Austria, 1997
Peter Zumthor

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Karl Moser

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Marseille, France, 1952
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Utrecht University Library
Utrecht, Netherlands, 2004
Wiel Arets Architects
BELGIAN NATIONAL SECRETARIAT

FEBELCEM – Federation of the Belgian cementindustry (Federatie van de Belgische cementnijverheid – Fédération de l’industrie cimentière belge)

contact persons:
Noël Naert
tel. +32 2 645 52 50
n.naert@febelcem.be

Jean-François Denoël
tel. +32 2 645 52 59
jf.denoel@febelcem.be

Marina Scherps
tel. +32 2 645 52 18
m.scherps@febelcem.be

address:
Boulevard du Souverain / Vorstlaan 68
B-1170 Bruxelles / Brussel
Belgium

GERMAN NATIONAL SECRETARIAT

InformationsZentrum Beton GmbH

contact person:
Ulrich Nolting
tel. +49 211 28048 301
ulrich.nolting@beton.org

address:
Steinhof 39
40699 Erkrath
Germany
IRISH NATIONAL SECRETARIAT

CMI - Cement Manufacturers Ireland

contact person:
Richard Bradley
tel. +353 419 87 60 00
rbradley@irishcement.ie

address:
c/o Platin
Drogheda
Co. Louth
Ireland

INTERNATIONAL COORDINATOR

bureaubakker

Siebe Bakker
mail@bureaubakker.com
RULES
1 PARTICIPATION
The 8th Concrete Design Competition is open to any registered student in schools of architecture or related disciplines in countries that support the competition, regardless of the participants own nationality.

The supporting countries are: Belgium, Germany and Ireland.

Entries may be submitted by individuals or by teams. Teams may be interdisciplinary and may consist out of a maximum of three persons. All members of a competing team must comply with all of the terms and conditions given in these rules. Entries can only be submitted in the country in which the competitor is studying during the academic year 2017/2018.

2 INFORMATION / LANGUAGE
All general information will be provided through our website only (www.concretedesigncompetition.com).

All communication will be in English. Proposals have to be drafted in English.

3 ENTRIES
3.1 Items to be submitted
The entries submitted by competitors or teams of competitors comprise a maximum of:
- Two A1- format panels (width: 594mm x height: 841mm) mounted on flat, stiff, strong backings. These must be laid out vertically (portrait) and numbered one and two.
- One A4 size envelope containing:
  - one digital copy of each submitted panel. Format TIF, Jpeg or PDF; 300 dpi on original panel size (A1) and in the original layout of the submitted panels.
  - completed identity form
  - completed ownership declaration
  - a copy of the school registration card for the academic year 2017/2018

3.2 Content of entries
There are no regulations concerning the content of the A1 size panels. They may contain plans, sections, isometrics and so on. Competitors must decide themselves on the most effective ways to present their proposals. Juries will under no circumstances examine any additional documents or models.

3.3 ID-code
Each competitor or team of competitors must choose an ID-code made up of:
- two letters from the Roman alphabet (e.g. AA)
- followed by three figures (e.g. 123)

This ID-code (e.g. AA123), to the exclusion of any other mention, must appear on all documents and wrappings entered in the competition:
- on the outside of any packaging
- on each panel
- on all digital media
- on the sealed envelope containing the identification form, ownership declaration, digital copies of the panels and copy of school registration of the competitor or team of competitors. No other writing should appear on the envelope. On each document, the code must be written in a horizontal frame 25 mm high and 100 mm wide, in the top left-hand corner of the document. The identification form and ownership declaration can be downloaded from our website.

3.3 Anonymity
The panels and the outside of the envelope may not contain any information indicating the identity of the competitors.

3.4 Submission of entries
The date for submission of entries will be set by each national secretary individually. Please check the national secretary section of our website (www.concretedesigncompetition.com) for details.

Entries must be sent carriage paid to the national secretaries. The national secretaries are unable to reimburse any expenses whatsoever.

3.5 Nationally declared requirements
Individual national secretaries may provide additional specifications for submission of entries. Please check the national secretary section of our website (www.concretedesigncompetition.com) for details.
4 OWNERSHIP
All materials received by the organisers become the property of the organisers and may be used in any form for publication purposes. The intellectual property rights of each project are the exclusive property of the author(s) thereof. Results (i.e. objects and drawings) produced during the master class will become property of the organisers and may be used in any form for publication purposes. The same rights for publication purposes are also reserved equally for all participants of the master class. Artistic rights, copyrights or intellectual ownership on results produced during the master class remain the property of all workshop participants and contributors as a group.

5 TIMETABLE
The 8th Concrete Design Competition runs during the academic year of 2017-2018. The date for submission of entries will be set by each national secretary individually. Please check the national secretary section of our website (www.concretedesigncompetition.com) for details. The Concrete Design Workshop will run from August ... to ..., 2018.

6 JUDGING
6.1 National juries
Each national secretary organises a national jury. The Jury members will be announced through our website.
6.2 Competition outcome
The jury’s decision is final and not open for debate. Each national jury will designate up to three winning entries, and may or may not specify a ranking. Additionally the national juries may award other entries with a ‘honourable mention’.
6.3 Disclosure of competitors’ names
No jury member will be made aware of competitors’ names until after the judging session. In order to guarantee the anonymity of the entries, competitors may not use their projects for any kind of communication before the national jury results are made public with the exception of regular school requirements.

7 AWARDS
7.1 Concrete Design Master Class
National winners are invited to participate in a 6 day Master Class as an international event. The national secretaries will organise and fund travel, accommodation and programme costs. Travel costs will be funded based on travelling from and to the country in which the entries were submitted. Details on the program will be given on our website (www.concretedesigncompetition.com).
7.2 Publication
All winning, and awarded (honourable mention) entries will be published on our website (www.concretedesigncompetition.com).
7.3 Additional awards
Individual national secretaries may offer additional awards to their laureates. Please check the national secretary section of our website (www.concretedesigncompetition.com) for details.
The 5th Concrete Design Competition – ENERGY runs in five European countries during the and architectural details to housing, landscape interventions, complex buildings, infrastructure and ambitions.

Competition entries need any notion on ENERGY. These can range from issues of vitality, robustness, dynamic behavior and properties like mass, volume, surface textures, mixtures and hybrids, in acting on current needs and ambitions. It asks to evaluate those properties of concrete that make it a relevant and versatile material for 'energy-aware' applications. It aims to fully pursue the potential of core architectural implications.

This competition seeks to investigate 'elegance' in architecture and concrete. For detailed information visit our website.
TC120 - Development Of Non-Directional Spatial Skeleton Structure

Il Hoon Roh
Transparency can be an inherent property of material as in the case of a curtain wall. Transparency can also emerge from a particular mode of organization.

When two or several figures are superposed one to another, each one of them claims the common part to both of them. Human eyes perception is one of contradiction in spatial dimensions, in order to resolve this contradiction, one has to actualize the existence of a new visual quality. These figures are transparent in a way, which means they are able to interpenetrate one into another without cancelling themselves out optically.

This transparency however, goes much more than its visual quality. It even implies a spatial much broader arrangement, Transparency means one will perceive simultaneously various space layers. Such an organisation pushed to extremities obviously induces a certain plasticity in the plan and the visual perception that it offers.

Because of its intrinsic properties, concrete excellently allows the production of similar elements on a large scale. Therefore, one can base oneself on a single element arranged and offered according to the needs of the project and this makes it possible to stick to the creation and the use of only one mould.
The present study is a case study of a landscape design project. It explores the relationship between landscape and architecture. The project is set in a rural area, where the landscape is characterized by a series of small hills and valleys. The design approach is focused on creating a seamless transition between the built and natural environment.

The project is characterized by the use of local materials, which are integrated into the design to create a sense of place. The use of local materials also helps to reduce the environmental impact of the project. The design is intended to be adaptable to the specific conditions of the site, allowing it to be replicated in other similar locations.

The project includes a series of workshops and public events, which are designed to engage the local community and promote a sense of ownership and pride in the project. The workshops focus on the use of local materials and traditional techniques, which are aimed at promoting local skills and knowledge.

The project is intended to be a living example of sustainable design, which is designed to be energy-efficient and environmentally friendly. The design is also intended to be resilient, able to adapt to changing conditions and future needs.
ComfortCapsule Concrete

Yü Chen, Juliane Greb
SZ595 - Urgent Performance

For most people around the world, living in poor housing conditions and lacking infrastructure like water and sanitation is a daily reality. The urgent and structural need is to fulfill basic housing necessities.

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

The first step that gives refugees a sense of home is to have shelter. This is especially true during the rainy season, when it is cold and wet outside. They are forced to build shelters to protect themselves from the elements.

Although they are completely illegal and are made of materials that are often too precious to be reused, the refugees manage to make do.

With limited resources, refugees build primitive settlements, the need for a new permanent shelter is urgent. Often this is achieved by erecting a structure using any available material, even if it means using old metal cans or cardboard boxes.

In many refugee camps, there are even ongoing programs that recycle waste into usable materials. This is a sustainable way to reduce waste and increase self-sufficiency.

The use of simple, functional shapes is crucial in refugee housing, as they are designed to withstand harsh conditions. The design should prioritize functionality over aesthetics, keeping the focus on the people who will live there.

By using an open-source design, it ensures the structural integrity and individual freedom while designing the most self-sufficient and sustainable designs for refugee neighborhoods.
BK007 - pliableCRETE

Experiment

The experiment with monolithic triangles that worked as a tension panel in a recent project can now be connected to each other by a flexible connection. The panels can be used as a functional object in an urban context as an architectural system, for example, because of the low weight and rigid, self-supporting shape, but also for further developments. An additional feature can be thecreation of space, as it is the perception as a light material in a different sense.

BK0072

Facade

As shown in the diagram (concept facade) on the left, a variety of geometrical forms can be obtained by combining different types of materials and shapes. The concept is inspired by the human body, where different materials and shapes interact to create new forms. The combination of these elements offers exciting opportunities for designers and architects.

Small furniture

The same concept of combining different materials and shapes can be used for small furniture. The idea is to create a flexible and adaptable system that can be adapted in any way. The concept of the monolithic triangles is to create a flexible and adaptable system that can be adapted in any way. The concept of the monolithic triangles is to create a flexible and adaptable system that can be adapted in any way.
LY 012

Introduction

The project focuses on the integration of modular geometric structures into architectural designs. The modular system is based on the concept of regular and irregular folding patterns, which are used to create adaptable facades.

Module Variations:

- Material:
  - Concrete
  - Steel
  - Glass

- Folded Geometries: Regular and Irregular

Material:

- Concrete (various finishes)
- Steel (various finishes)
- Glass (clear, tinted)

Folding Patterns:

- Regular: Symmetrical, uniform folding
- Irregular: Asymmetrical, varied folding

Experimentation:

- Structural Analysis
- Material Testing
- Acoustic Optimization

Conclusion:

The modular system allows for flexibility in design, enabling the creation of unique architectural facades that respond to environmental and aesthetic requirements.
THE MONOLITHIC

The concept of the monolithic form has been a recurring theme in architecture. It is not just a form, but a metaphor for the idea of unity and completeness. The monolithic form is characterized by its simplicity and grandeur, often reflecting the idea of timeless and universal beauty. In many cultures, the monolithic form has been used as a symbol of power and authority, as seen in the pyramids of Egypt or the great stone buildings of ancient civilizations.

In the modern era, the monolithic form has been reinterpreted and adapted to new contexts, often serving as a design solution to solve complex problems. The monolithic form can be found in various scales and settings, from small sculptures to large urban structures.

The monolithic form inspires a sense of awe and wonder, a feeling that transcends the physical and enters the realm of the spiritual. It is a form that challenges the boundaries of perception and imagination, inviting the viewer to explore the depths of meaning and the potential of design.
CONCRETE CYMATICS

INTRODUCTION

Concrete and matter are constantly going through the process of change. Architects today are now using the technology of printing with concrete in the 21st Century.

So how can we make concrete not just stronger and better, but also more "energy-aware"? Let's find out! How can we bring concrete back and make it better?

Because all the components have "concrete and energy" and thought of approaching the basic idea of concrete up with a new vision on how to use energy directly in concrete. We aimed at investigating concrete and its potential to absorb sound, so that it can be used as a material to absorb sound.

So what is Cymatics?

Cymatics is the study of visible sound and vibration and our main focus is on the basic principles of sound waves and how they interact with materials. Cymatics has been used in various fields such as architecture, engineering, and music.

DOING IT WITH CONCRETE

Concrete is a new material that can be molded with concrete and any material we want. By mixing concrete with different materials, we can create unique and interesting shapes. This project explores the possibility of using concrete as a medium for energy absorption.

APPLICATIONS

If we could harness the natural energy of sound, it would be a game-changer in the way we build and construct. The potential of concrete as an energy-absorbing material is vast and could revolutionize the way we design and build our environments.
To Cast Light on Seaweed

CR777 - To Cast Light On Seaweed

Colin Dorgan & Ray Mc Greal
WA628 - Ernst-Reuter-Platz

Michael Albertshofer, Sebastian Awick & Steffen Winkler
When I think about concrete I have this image in mind of a solid monoolithic and rough artificial stone which has its own silent and powerful presence.

Let us conceptualize it in a new way.

Before concrete turns to solid it is a liquid. Depending on the ingredients this liquid substance slowly solidifies itself to become a solid stone.

I conceive concrete as a liquid that can and should be reshaped by causes that naturally affect construction materials. More precisely movements that are caused by the wind, the rain or even the sun and the snow. The weather is hence a new ingredient that gives life to concrete. Imagine four examples:

- During a windy day it could be marked by a thousand undulations.
- During a rainy day it could have some ripples because of the drops that hit its surface.
- During a sunny day it could be almost smooth but still marked by subtle variations.
- During a snowy day it would seem to be frozen.

In addition to its features this new idea of concrete could open possibilities for a sensitive and contemporary architecture. It implies an unfamiliar experience for dwellers: a mental and physical reconnection to Nature.

This «concrete weather» is an idea that goes beyond architecture knowledge. It involves cooperation with Artists, craftworkers, chemists and others to become real.
EAT YOUR HOUSE OUT

**Step 1:** Carve in Winter

**Step 2:** Carve it Empty

**Step 3:** Move a Nest

**Step 4:** Using the House

Your are looking at a combination of a birdhouse that could be used as a birdhouse and a birdhouse that is embedded in the concrete.

After eating a while, the birds create a hole in the concrete birdhouse.

The form of a bird's nest is created in the birdhouse.

When the winter is coming to an end, a bird can make a bird nest inside the birdhouse.

When the bird finished the nesting and the young birds are flown out, you can remove the bird's nest and refill the bird nest with a birdseed filling.
FM 175 - When A Fire Starts To Burn

Aoife Flynn & Poilina Mullan
CDC7  
Thomas van Dessel

OO360 - Membrane Shell Structure

Membrane Shell Structure

Morphogenesis - to create specific form in relation to specific requirements/functional purposes.

To apply an aesthetic form to a functional object, it is important to find a structural system that reflects its visual characteristics. The design should capture the essence of the material and the structural system in a single form.

Materials and processes - the materials used in the membrane shell structure are selected based on their properties and the specific requirements of the project. The use of lightweight and flexible materials allows for the creation of lightweight and expressive forms.

The membrane shell structure is a highly efficient and cost-effective solution for covering large areas. It is characterized by its ability to span large distances with minimal structural elements.

The membrane shell structure is a highly efficient and cost-effective solution for covering large areas. It is characterized by its ability to span large distances with minimal structural elements.

Concrete Design Competition VII

Concrete Design Competition VII

Concrete Design Competition VII
HT308 - Sun Sails

Sebastian Schuch, Michael Wagner, Pol Firmenich, Daniela Replinger, Lorenz Reiter, Kirsten Verstraeten & Niklas Emmerich
SEVEN MASTER CLASSES
MASTER CLASSES

International Group Work