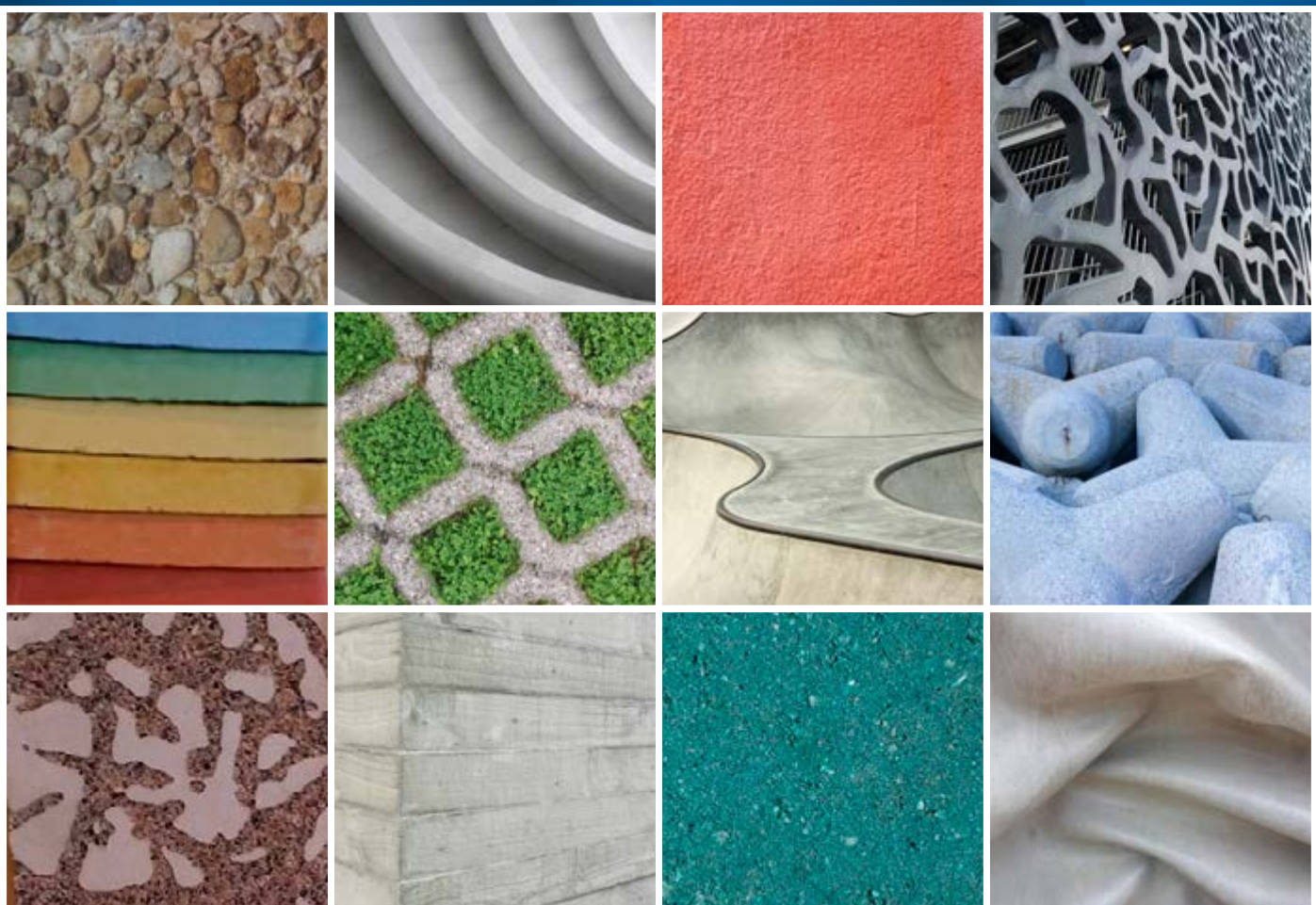


Design Concrete 2023



The Concrete Centre Student Architecture Competition



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Introduction

Design Concrete is a national student competition which encourages architecture students to explore the benefits of designing sustainably with concrete.

The 2023 project is to submit innovative concrete designs for a café, information centre, nature trail and/or bird-watching shelter within the bio-diverse setting of the Ouse Fen Nature Reserve.

The competition is open to students studying at schools of architecture, landscape architecture and the built environment in the UK, and is free to enter.

Benefits for students:

- Opportunity to present your work to prospective employers, some of whom are involved in setting and judging the competition.
- Chance to enhance your portfolio for prospective employers.
- Gain familiarity with current design practises.
- Develop skills in communication, planning and technical design.
- A chance to win £250 for you/your team.



The Concrete Centre is the central development organisation for the UK cement and concrete industry. Its objective is to assist all those involved in design and construction to realise the full potential of concrete as an adaptable and sustainable construction material.

For more information on The Concrete Centre visit www.concretecentre.com.

The Concrete Centre is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

This year's challenge...

The 2023 project is to create a sustainable concrete structure within a former quarry that allows both humans and wildlife to successfully share the same environment, providing a platform for biodiversity and opportunities for visitors to engage with and learn about the natural and geological environment.

The setting for the structure is any publicly-accessible location within the Ouse Fen Nature Reserve, near Cambridge. Students can choose to design a café, information centre, nature trail or bird watching shelter, or indeed a combination of some / all. Please refer to the site accessibility and information section (in 'Site information') regarding access to the site.

There are no specific size or space requirements stipulated. These can be determined by the entrants to suit individual proposals. The design should however feature concrete as a significant component of the proposal, demonstrating an understanding of how it can be used to reduce whole life carbon, provide climate change resilience and support a more circular economy.

Suggested areas for consideration include:

- Low carbon cements.
- Resource efficient forms (e.g. post-tensioning, ribbed slabs, thin shell, hollow core, 3D-printed elements).
- Design for long life through loose fit and/or disassembly.
- Recycled content, recyclability and reuse.
- Use of thermal mass for passive cooling and heating.
- Fire and flood resilience.
- Healthy indoor environments.
- Support for biodiversity.
- Innovative products.
- Design to support green, blue and brown roofs.
- Sustainable drainage systems to support other green infrastructure.

The judging panel are also looking for students to explore creative ways of using concrete with texture, colour, form, and post-finishing techniques (where appropriate) to create architectural spaces and landscape interventions of unique and site-specific character.

Sustainable concrete

There is an ever-growing range of low carbon concretes available to use in the UK and concrete's versatility offers many opportunities for the creation of climate friendly uses, structures, buildings and design.

The use of local low carbon concrete mixes, aggregates, recycled content, lean low-waste forms, and modern methods of construction, together with concrete's potential to provide passive climate change resilience and energy efficiency, are just some of the ways in which concrete can be used within highly sustainable buildings.

This competition seeks to raise awareness and skills related to the design, specification and use of concrete, highlighting the sustainability considerations required of the built environment to address climate change.



The site

The Ouse Fen Nature Reserve is a partnership project between Hanson UK and the Royal Society for the Protection of Birds (RSPB). Since 2001, the two organisations have been working together to progressively restore sand and gravel extraction sites at Needingworth Quarry to form a new wetland habitat. Hanson UK is a leading supplier of aggregates, asphalt, cement and ready-mixed concrete. The RSPB is a charitable organisation that works to promote the conservation and protection of birds and the wider environment.



Images courtesy of Hanson UK

Quarrying of sand and gravel from the Needingworth Quarry at Ouse Fen began in 2001. Over the 30 year lifetime of the project, 28 million tonnes of sand and gravel will be extracted from the site to supply the UK construction industry, helping to create much needed structures such as homes, schools, hospitals and infrastructure. As quarrying is finished in sections across the site, the land is being restored by Hanson UK to wetland habitat before being handed over to the RSPB for future management. The Ouse Fen Nature Reserve project is the largest planned nature conservation restoration scheme following sand and gravel extraction in Europe and, when complete in 2030, will be the biggest reedbed in the UK. Species that were once common in the Fens are already returning to feed and breed at Ouse Fen. Bitterns have started to colonise the reserve as well as other iconic wetland wildlife including marsh harriers, bearded tits, otters and water voles.

In July 2021 a new public entrance was opened to Ouse Fen allowing members of the public to explore the rapidly growing and evolving nature reserve.

Site information

A full pack of site information including scaled drawings, photographs and drone film footage can be downloaded at:

www.concretecentre.com/designconcrete

There is no requirement for students or tutors to visit the nature reserve. If individuals do decide to visit the site, details regarding access and facilities can be found on the RSPB's website at:

www.rspb.org.uk/reserves-and-events/reserves-a-z/ouse-fen

Visitors must keep to the marked public footpaths at all times in the nature reserve. Access is also not permitted under any circumstances to the working areas of the quarry site.

Group visits may be possible if arranged in advance with ousefen@rspb.org.uk



Image © IStock/Alphotographic

UK quarry restoration and biodiversity

The setting of the competition in the Ouse Fen Nature Reserve aims to raise awareness of the importance of responsibly sourced materials for construction. Most concrete used in the UK is manufactured locally from locally-sourced materials.

The UK concrete and quarrying industry has been working with and enhancing the environment in the UK for the last 50 years. The industry was the first in the UK to have a biodiversity strategy, and has, and continues to take a positive approach to nature conservation

and recovery, leaving behind more and better quality habitats than before mineral extraction (known as biodiversity net gain). To date, at least 8,000 hectares of UK priority habitat has been created on UK quarry and mineral extraction sites, with a further 11,000 hectares committed to in approved restoration plans.

The Needingworth Quarry/Ouse Fen Nature Reserve is just one of these sites in the UK and is in the process of creating 700 hectares of wildlife-rich wetland habitat, restoring, and improving this part of the Fens.

Assessment criteria

The entries will be judged using the following assessment criteria:

- Demonstration of an understanding of concrete as a material, its potential uses, benefits and sustainability credentials.
- Compliance with the project brief.
- Imagination, flair, aesthetic appreciation and innovation.
- Safety, function and robustness.
- Buildability and maintainability.

The interpretation of the above criteria by the award judging panel will be final and formal feedback will not be provided.

Eligibility

Design Concrete is open to students enrolled in UK schools of architecture, landscape architecture and the built environment. Entries can be single, joint, or from teams of up to four students.

The competition is aimed at students in their second and third years of undergraduate study although alternative course structures are also eligible.

Each university will be asked to select a maximum of three students' work for submission.

Independent submissions of work from students whose universities are not embedding the competition brief within their course will also be reviewed and considered but only five such submissions will be shortlisted for judging at the national level alongside university submissions.

Entries cannot be entered via both routes, or will be excluded.

Students submitting independently of their university must provide proof of an active university email address.

Submission stages

Step 1 – Registration

16th July 2022 - 16th December 2022

Universities and independent students should register their interest to enter the competition by filling in the online form at www.concretecentre.com/designconcrete by 16th December 2022.

Once registered, each university will be provided with three unique entry reference numbers to be included on their submissions along with final instructions as to where the final submission should be sent.

Each independent student (i.e. those not at a university running the competition in their course) will receive their unique entry reference number directly once registered.

Step 2 – Submission

9th January 2023 – 16th April 2023

Each university/student is to upload their submissions to the online storage platform provided by The Concrete Centre. All submissions must be uploaded before 5pm on 16th April 2023.

Submission requirements

A maximum of three A1 digital presentation boards are permitted for each student/team submission. The competition entries should be submitted as digital PDF files.

It is essential that all submissions are anonymous from both a student and university perspective. Each student's unique entry reference number should be clearly marked on all boards forming the design entry. **No other form of identification or distinguishing mark should appear on any part or file name of the submission.** Presentation boards should visually communicate the design, sustainability proposals and the supporting ideas in a persuasive and descriptive way. This should include the following:

Scaled drawings

Scaled annotated drawings should be included in the student's submission. Drawings may be prepared using appropriate CAD software, or by hand. In either case, notes and dimensions should not be smaller than the equivalent of an 11pt font when printed at A1.

Drawings must be to an appropriate scale. The drawings should show the following:

- i. Site plan.
- ii. General arrangement floor plans of all levels.
- iii. Section(s) through the proposed design showing relationship to site context, methods of inhabitation and scales of space.
- iv. Elevations of the proposed design showing its form shape and materiality in relation to the existing context.
- v. Construction detail(s) showing interconnection of concrete building elements.

Models and views

Images of 3d modelling (either digital or physical) should be included on the student's submission boards. All 3d modelling must show the design proposal accurately located to scale in its surrounding context. 3d images should convey the unique atmosphere, character and inhabitation of the spaces and places being created by and within the design proposals.

Awards

The winner(s) of the national competition will receive a certificate(s) and a prize of £250.

The judges may decide on a joint first prize in which case the above prize money will be divided up by the judging panel at its discretion.

Runner(s) up will also receive a certificate(s).

The prize winners' universities will also receive certificates.

Presentation

The prizes and certificates will be presented at an event in London. The prize winners and tutors will be notified of further details regarding date and location in advance.

Extracts from the winning and shortlisted entries will also be exhibited and publicised on The Concrete Centre's social media platforms and website along with credits.

Rules

1. Complete design entries must be received by the final deadline of 5pm on the 16th April 2023. Late or incomplete submissions will not be accepted.
2. Each student will be allocated a unique entry reference number which should be clearly marked on all pages forming the design entry. **No other form of identification or distinguishing mark should appear on the boards or any part or file names.**
3. A successful competitor must be able to satisfy the judges that he or she is the bona fide author of the design that he or she has submitted.
4. Competitors should retain the originals of the designs and drawings submitted. The organisers cannot be held responsible for loss or damage to submissions which may occur either in digital transit or during exhibition, storage or packing. The organisers regret that submissions cannot be returned to candidates after the competition.
5. Any entry shall be excluded from the competition if:
 - The competitor does not meet the eligibility requirements.
 - The entry is received after the competition closing date.
 - The competitor discloses his or her identity in the submission.
 - The competitor attempts to influence either directly or indirectly the decision of the award judging panel.



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The Concrete Centre is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

www.mineralproducts.org



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