

The learning resources listed on the following pages will be helpful to students and tutors taking part in the Design Concrete 2025 competition. All of the resources listed are free to access and download. The competition brief outlines three key design deliverable areas that students must fulfil in their designs. Namely “Sustainability”, “Creativity” and finally “Manufacturing & Construction”. To aid students and tutors, this learning resource list has been divided into the the three categories. An additional section of case studies also provides a list of relevant built concrete projects for inspiration. Further resources relating to concrete are also available via The Concrete Centre’s website www.concretecentre.com. This learning resources list also includes a number of external links at the end of the document relating specifically to the Canvey Island seafront and the Environment Agency revetment renewal projects taking place at the seafront.

Sustainability

Concrete Centre Sustainability Events

Sustainability Series 2022

<https://www.concretecentre.com/CPD-Events/Sustainability-series.aspx>

Sustainability Series 2023

<https://www.concretecentre.com/CPD-Events/Sustainability-Series-2023.aspx>

Low carbon concrete / cements

Low carbon concrete compass - navigating useful resources and guidance

<https://concretecentre.com/lowcarbonconcrete>

The Concrete Centre blue book guide “Specifying sustainable concrete”

<https://www.concretecentre.com/Publications-Software/Publications/Specifying-Sustainable-Concrete.aspx>

Webinar “Carbon terminology explained” Nov 2022

<https://www.concretecentre.com/CPD-Events/Events/Carbon-terminology-explained.aspx>

Sustainability series “Delivering real carbon reductions within the standards” Nov 2022

[https://www.concretecentre.com/CPD-Events/Events/Delivering-real-carbon-reductions-\(Week-5\).aspx](https://www.concretecentre.com/CPD-Events/Events/Delivering-real-carbon-reductions-(Week-5).aspx)

Webinar “Understanding the role of cement content in concrete” Jun 2022

[https://www.concretecentre.com/CPD-Events/Events/Understanding-the-role-of-cement-content-in-co-\(1\).aspx](https://www.concretecentre.com/CPD-Events/Events/Understanding-the-role-of-cement-content-in-co-(1).aspx)

Webinar “Specifying Low Carbon Concrete” May 2021

<https://www.concretecentre.com/CPD-Events/Events/Specifying-Low-Carbon-Concrete.aspx>

Webinar “Specification of concrete to BS8500: Lowering embodied carbon” Jun 2020

<https://www.concretecentre.com/CPD-Events/Events/Specification-of-concrete-to-BS8500-Lowering-Embod.aspx>

Concrete Futures lecture “Expanding the use of lower carbon concretes” Nov 2021

<https://www.concretecentre.com/CPD-Events/Events/Concrete-Futures-Lecture-Expanding-the-use-of-lowe.aspx>

Concrete Futures lecture “A new generation of low carbon concretes” Nov 2020

<https://www.concretecentre.com/CPD-Events/Events/Concrete-Futures-Lecture-A-new-generation-of-low-c.aspx>

Sustainability

Whole life carbon, recycled content, recyclability, re-use and the circular economy

The Concrete Centre blue book guide “Whole-life carbon and buildings”
<https://www.concretecentre.com/Publications-Software/Publications/Whole-life-Carbon-and-Buildings.aspx>

Webinar “Circular economy: strategies for concrete buildings” Dec 2021
[https://www.concretecentre.com/CPD-Events/Events/Circular-economy-strategies-for-concrete-build-\(1\).aspx](https://www.concretecentre.com/CPD-Events/Events/Circular-economy-strategies-for-concrete-build-(1).aspx)

Resource efficient forms

Webinar “Exposing concrete structure: A material efficient and low carbon strategy” Aug 2020
<https://www.concretecentre.com/CPD-Events/Events/Exposing-concrete-structure-a-material-efficient-a.aspx>

Webinar “Post tensioned (PT) concrete floors” July 2020
[https://www.concretecentre.com/CPD-Events/Events/Post-tensioned-\(PT\)-concrete-floors.aspx](https://www.concretecentre.com/CPD-Events/Events/Post-tensioned-(PT)-concrete-floors.aspx)

Thermal mass, passive cooling and heating

The Concrete Centre youtube video “Thermal Mass Explained” 2020
<https://www.youtube.com/watch?v=CzWuLJ-ZFSs>

The Concrete Centre blue book guide “Thermal Mass explained”
<https://www.concretecentre.com/Resources/Publications/Thermal-Mass-Explained.aspx>

Webinar “Thermal Mass Explained” Sep 2020
<https://www.concretecentre.com/CPD-Events/Events/Thermal-Mass-Explained.aspx>

Webinar “Exposing concrete structure: A material efficient and low carbon strategy” Aug 2020
<https://www.concretecentre.com/CPD-Events/Events/Exposing-concrete-structure-a-material-efficient-a.aspx>

Webinar “Passivhaus projects in concrete” Oct 2020
<https://www.concretecentre.com/CPD-Events/Events/Passivhaus-Projects-in-Concrete.aspx>

Healthy indoor environments, fire & flood resilience

Webinar “Healthy, resilient homes and buildings” Jul 2022
[https://www.concretecentre.com/CPD-Events/Events/Healthy,-resilient-homes-and-buildings-\(1\).aspx](https://www.concretecentre.com/CPD-Events/Events/Healthy,-resilient-homes-and-buildings-(1).aspx)

Support of biodiversity

Fresh Concrete 2023 “shaping better places - creating habitat for biodiversity using concrete”
<https://www.concretecentre.com/CPD-Events/Events/Fresh-Concrete-1-Shaping-better-places.aspx>

Concrete Futures lecture “Bioreceptive concrete” June 2020
<https://www.concretecentre.com/CPD-Events/Events/Concrete-Futures-Bio-receptive-concrete.aspx>

Sustainability

Design for long life through loose fit and / or disassembly

Fresh Concrete lecture 2 “De & Re-constructible modular concrete structures”
<https://www.concretecentre.com/CPD-Events/Events/Fresh-Concrete-De-Re-constructible-modular-concret.aspx>

Flood resilience

Concrete Centre guidance on flood resilience
[https://www.concretecentre.com/Performance-Sustainability-\(1\)/Flood-Resilience.aspx?feed=c80b3762-1e83-4d27-9bcc-173138428c72](https://www.concretecentre.com/Performance-Sustainability-(1)/Flood-Resilience.aspx?feed=c80b3762-1e83-4d27-9bcc-173138428c72)

Innovation

Concrete Futures magazine Spring 2023
<https://www.concretecentre.com/Resources/Publications/Concrete-Futures,-spring-2023.aspx>

Webinar “Low carbon cements” Oct 2022
<https://www.concretecentre.com/CPD-Events/Events/Low-carbon-cements.aspx>

Concrete Futures lecture “Carbon negative cementitious material, 3d printing and graphene enhanced admixtrure” Nov 2022
<https://www.concretecentre.com/CPD-Events/Events/Concrete-Futures-Carbon-negative-on-demand.aspx>

Fresh Concrete lecture 3 “Low carbon, self healing concrete” May 2022
<https://www.concretecentre.com/CPD-Events/Events/Fresh-Concrete-3-Low-carbon,-self-healing-concrete.aspx>

Fresh Concrete lecture 1 “Carboncure” Mar 2022
<https://www.concretecentre.com/CPD-Events/Events/Fresh-Concrete-Carbon-Cure.aspx>

Creativity

Visual concrete, form and formwork

The Concrete Centre blue book guide “Visual Concrete”
<https://www.concretecentre.com/Publications-Software/Publications/Visual-Concrete.aspx>

Concrete quarterly “Visual concrete focus”
<https://www.concretecentre.com/Resources/Publications/Concrete-Quarterly-Visual-Concrete-Focus.aspx>

Webinar “Visual concrete formwork” Apr 2022
<https://www.concretecentre.com/CPD-Events/Events/Visual-Concrete-Formwork.aspx>

Webinar “Achieving cast in situ visual concrete” Apr 2018
<https://www.concretecentre.com/CPD-Events/Events/Achieving-cast-in-situ-visual-concrete.aspx>

Creativity

Texture colour and pattern, post finishing techniques

Webinar “Introduction to Visual Concrete” Jul 2021

[https://www.concretecentre.com/CPD-Events/Events/Introduction-to-Visual-Concrete-\(1\).aspx](https://www.concretecentre.com/CPD-Events/Events/Introduction-to-Visual-Concrete-(1).aspx)

Webinar “Visual concrete achieving texture colour and pattern” Nov 2020

<https://www.concretecentre.com/CPD-Events/Events/Visual-Concrete-achieving-texture,-colour-and-patt.aspx>

Rammed concrete

Webinar “Creating concrete with a natural appearance” Oct 2019

<https://www.concretecentre.com/CPD-Events/Events/Creating-Concrete-with-a-Natural-Appearance.aspx>

Construction

Compendium of technical articles published in concrete quarterly in 2020 and 2021

Technical compendium

<https://www.concretecentre.com/Resources/Publications/Concrete-Quarterly-technical-compendium-2020-2021.aspx>

In situ / precast / hybrid concrete structures

The Concrete Centre blue book guide “Concrete framed buildings”

<https://www.concretecentre.com/Resources/Publications/Concrete-Framed-Buildings.aspx>

Webinar “Concrete framed buildings” Jan 2020

<https://www.concretecentre.com/CPD-Events/Events/Concrete-framed-buildings.aspx>

The Concrete Centre blue book guide “Offsite concrete construction”

<https://www.concretecentre.com/Resources/Publications/Offsite-Concrete-Construction.aspx>

Different types of reinforcement

Fresh Concrete lecture 4 “Graphene enhanced concrete” Jun 2022

<https://www.concretecentre.com/CPD-Events/Events/Fresh-Concrete-4-Graphene-enhanced-concrete.aspx>

Sustainable drainage systems, design to support green, blue and brown roofs

CQ article “Grey supporting green” Jul 2020

<https://www.concretecentre.com/News/2020/Grey-supporting-green.aspx>

Offsite manufacture / MMC

Offsite concrete construction compass - navigating useful resources and guidance

<https://www.concretecentre.com/Resources/Concrete-Compass/Offsite-concrete-construction.aspx?feed=a4091125-9a6b-4497-be48-e5fa36aea526>

Construction

3d printing

Case study “striatus”

<https://www.concretecentre.com/Specification/Innovative-concrete/Striatus.aspx>

Case study “3d printed concrete Loughborough Uni”

<https://www.concretecentre.com/Specification/Innovative-concrete/3D-Printing.aspx>

Fresh Concrete lecture 2 “Low carbon 3d printed concrete” Apr 2022

<https://www.concretecentre.com/CPD-Events/Events/Fresh-Concrete-Low-carbon-3D-printed-concrete.aspx>

Concrete in Marine & Coastal settings

<https://www.concretecentre.com/Structural-design/Infrastructure/Marine-and-Coastal.aspx>

Case Studies

Turner Art Gallery Margate

<https://www.concretecentre.com/Case-Studies/Turner-Art-Gallery,-Margate.aspx>

Little Island New York

<https://www.concretecentre.com/Case-Studies/Little-Island,-New-York.aspx>

Mumbles Seahive Wales

<https://www.concretecentre.com/Specification/Innovative-concrete/Mumbles-Sea-Hive-Project.aspx>

Outhouse Forest of Dean

<https://www.concretecentre.com/Case-Studies/Outhouse,-Forest-of-Dean.aspx>

Hepworth Gallery Wakefield

<https://www.concretecentre.com/Case-Studies/Outhouse,-Forest-of-Dean.aspx>

V&A Dundee

<https://www.concretecentre.com/Case-Studies/V-A-Dundee.aspx>

A full list of Concrete Centre case studies can also be accessed here:

<https://www.concretecentre.com/case-studies.aspx>

Concrete Quarterly Magazine is also a useful resource for both case studies and technical guidance. The magazine is published 4 times a year and the whole back catalogue since 1947 can be accessed for free via:

<https://www.concretecentre.com/Publications-Software/Archive.aspx>

Particular CQ editions with useful case studies for the competition:

Concrete Quarterly Winter 2023 - Circle Permeable Concrete - Crushed waste seashells used as aggregate to create permeable concrete

<https://www.concretecentre.com/getmedia/398b1772-9fea-4d55-bae9-ff724e2fef94/CQ285-Winter-2023-digital-edition.aspx>

Concrete Quarterly Summer 2013 - 7 Wonders - Crushed wall by Walter Jacks Studio & Dover Esplanade by Tonkin Liu

https://www.concretecentre.com/TCC/media/TCCMediaLibrary/Concrete%20Quarterly%20Archive/2013/CQ_244_Summer2013.pdf?ext=.pdf

External links and resources relating to the Canvey Island Seafront

Environment Agency Youtube video summarising the Canvey Island Revetment renewal project:
https://www.youtube.com/watch?v=YXIG_6Avlus&t=77s

Environment Agency Youtube video - Canvey Island reventment renewal timelapse:
<https://www.youtube.com/watch?v=RJixqs78jzs>

Jacobs Youtube video - Team 2100: Thames Estuary Asset Management - Providing resilience for generations to come
<https://www.youtube.com/watch?v=lwJ2VYk3Zxk&t=503s>

Environment Agency Canvey Island flood risk stats and diagrams
https://consult.environment-agency.gov.uk/east-anglia-c-e/canvey-southern-shoreline-project/supporting_documents/Flood%20Risk%20on%20Canvey%20Island.pdf

Environment Agency Youtube video - How water drainage works on Canvey Island
<https://www.youtube.com/watch?v=4aUK-G1q3a4>

Historic Archive footage of 1953 Canvey Island flood
<https://www.youtube.com/watch?v=WFV8sz2Wcj4>