Short Reads Short Reads Videos Short Reads

Please Note: These resources are highlighted to the reader for their potential value/interest. Further resources are available via the "see more" links on the Climate Emergency webpage, as well as new resources published since the last update to the resource map. Some have been produced by third parties. The Institution of Structural Engineers does not necessarily endorse (nor is it responsible for) any statement or opinion expressed within these



Essential Resources

Longer Reads External Content

External Content

Video: The brief, policy and risk/resilience Video: The art of persuasion and collabora

Essential Resources

How to calculate embodied carbon A brief guide to calculating embodied carbon An introduction to The Structural Carbon Tool Software: The Structural Carbon Tool

on to the proposed SCOBS

Structural safety when designing lean in the climate emerg Structural fire safety when responding to the climate emerg Lean yet resilient – designing for the future Adaptable structures - what really is serviceability? Designing buildings for a warmer future

What can you do if you are convinced a structure will work but can't prove it to code?

Understanding existing buildings – five studies to complete before design work starts o refurbishment. Part 1: Identifying opportunities at the An introduction to refurbishment. Part 2: Maximising the opportunities at the design stage

Concrete-encased steel frames, 1900-70: considerations in the assessment and refurbishment

External Content

The Handbook to building a circular economy The reuse alters: a designer's guide towards the circular econom UKGBC - Circular Economy Guidance for Construction Clients LET: Circular Economy 1-pager SCI: Steal and the Circular Economy Concrete Centre Webpage: Circular Economy Anap. Realising the sulae of the circular economy in real estate

e Emergency Retrofit Guide SCI P427 structural steel reuse: Assessment, testing, and design principles

Essential Resources

MPA: UK Concrete and Cement industry ro net zero , are can help solve the concrete challenge Engineers can help solve the concrete chairenge Blog: How to specify lower carbon concrete How can we reduce the embodied carbon of structural of the source buildings Marginal gains - carbon in concrete buildings ICE: Low Carbon Concrete Boute Man

Short Reads

ecycled and secondary aggregates in Beyond Portland cement: Low-carbon alternatives Use of recovered toner powder to enhance durability, engli and sustainability performance

Videos What's happ

Longer Reads

Fiberglass rebar: a proven and sust infrastructure evelopments in structural concrete conference 202 Novel materials series: Low carbon concrete tech

External Content

Concrete Centre: Specifying Sustainable Concrete MPA: Low Carbon Cements and Concretes Concrete Centre Webpage: Low Carbon Concrete Concrete Centre Webpage: Concrete Futures MPA: Carbonation of Concrete

2.3 Concrete

Short Reads

Longer Reads

Essential knowledge text no.8 - New structural mate Blog 11 recommended reads on using timber and bamboo Blog 9 recommended reads on earth and straw Webinar series: Novel materials and methods to achieve net zero Novel materials series: Novel materials and interiods to achieve het 2 Novel materials series: How to get novel materials adopted or projects: R&D to construction Novel materials series - Timber concrete composites Novel materials series: Designing with rammed earth Novel materials series: Designing with straw bale Structural engineering with bamboo Sustainable bamboo housing

External Content

2.6 Other materials

Essential Resources

Developing a low-carbon economy for steel Blog: Making your steel specification more su Specifying sustainable steel: revised CARES Sustainable Constructional Steel certification scheme Enabling steel's circular economy potential Delivering steel's circular economy potential

External Content

Chatham House: Achieving Net Zero in the Steel Sect SCI: Sustainability Guidance Webpage SCI: The whole story from cradle to grave JK Structural Steelwork: 2050 Decar CSA Webpage: Sustainabilit SCI: Target Zero Design Guides

2.4 Steel

Essential Resources

Making low-carbon material choices How to read an EPD: basics for the structural engineer Typical operational energy and carbon figures for buildings Responsible sourcing

Short Reads

How to carry out a carbon impact assessment of a structural consultancy office Climate emergency e-conference 2022: people and planet - Understanding material Considerations when choosing sustainable materials Blog: Steel, concrete & climate change What if carbon drives our design from the outset? Internal environment and thermal ma

Longer Reads

on site and in bride -Balancing embodied and op nal carbon in building enve Masonry solutions for low energy buildings

External Content

Concrete Centre Webpage: Energy Efficient Buildings Concrete Centre Webpage: Local Material SCI: Thermal Mass

LETI & CIBSE: Net Zero FAQs

2.7 Carbon wider reading

3.2 Optioneering and Optimisation

Essential Resources Lean design: 10 things to do now

Engineering in the climate emergency: doing less, better Engineering in the onestic of magaciny compared processories and the stational station of the st

Short Reads What do we mean by efficiency? A holistic approach to reducing emb Reduced reinforcement through reduced material partial factors Climate Emergency E-Conference 2022: People and Planet - Digital software Viewpoint: Computational design: embedding sustainability Viewpoint: Time to be lean Comment and reply: Time to be lean

External Content

Guide to Improving Value by Reducing Error – GIRI Concrete Centre Webpage: Material Efficiency Economic Concrete Frame Elements to Eurocode 2

4.3 Conservation

Essential Resources

Knowledge, skills, history - a foundation for a limate-positive future

Short Reads

Conservation compendium. Part 7: Imposed load in historic buildings: assessing what is real Conservation compendium. Part 16: The monitoring of movement in historic buildings and structures Conservation compendium. Part 17: Filler-joist floors – development, capacity and typical defects nservation compendium. Part 18: Non-invasive Vanaging Health & Safety Risks (No. 32): Ider

Longer Reads

4.4 Offsite manufacture

Essential Resources

Modernising design for minimal waste Longer Reads

Refocusing modern methods of construction on the climate emergency: a five capitals model for action Manufacturing buildings for people and planet Digital fabrication Optimising the structural design of modular housing by combining timber and lightweight steel framing

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Concrete Centre Webpage: Offsite Concrete Construction

+ Zoom in to click the links and use Ctrl+F to search



Embracing probability: could big data spell the end of safety factors

Longer Reads

Shell structures: lessons in structural efficiency for sus