

## RECBE – IStructE Sustainability Report Template and Checklist

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An aerial photograph of a city skyline at sunset. The sky is filled with soft, golden light and scattered clouds. In the center, a tall building is under construction, with a crane visible against the sky. The foreground shows a dense cluster of buildings, their silhouettes softened by the low light. The overall mood is serene and industrious.

**“A template report to add project-specific information based on work undertaken to increase the sustainability of the project.”**

# The Structural Plan of Work 2020

**NOTES:**

The Structural Plan of Work 2020 has been developed to coordinate and integrate with the other parts of the project. It is intended that the Structural Plan of Work will be used as a framework for a project's structural design and construction. It is intended that the Structural Plan of Work will be used as a framework for a project's structural design and construction. It is intended that the Structural Plan of Work will be used as a framework for a project's structural design and construction.

**Overview**  
 Cover top requirements defined

**Contingency Assessment**  
 Contributes to preparation of Client Requirements

**Design**  
 Contributes to preparation of Client Requirements

**Interface**  
 Contributes to preparation of Client Requirements

**Construction**  
 Contributes to preparation of Client Requirements

**Management**  
 Contributes to preparation of Client Requirements

**Sustainability**  
 Contributes to preparation of Client Requirements

**Statutory Requirements\***  
 Contributes to preparation of Client Requirements

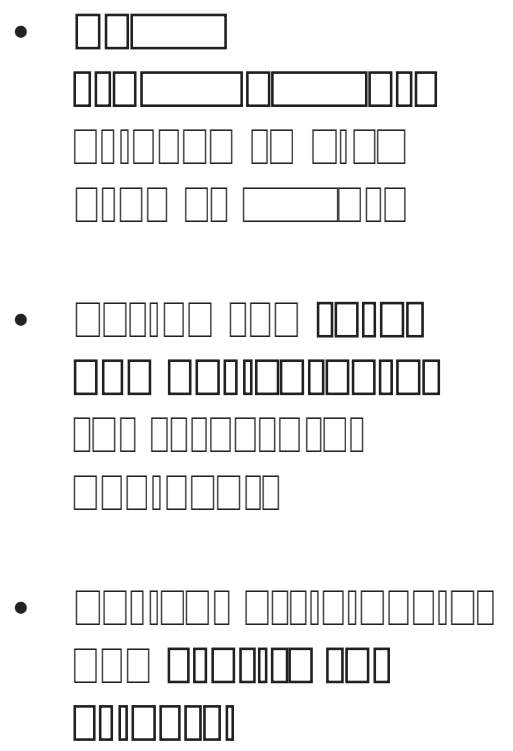
**Stage Outputs**  
 Contributes to preparation of Client Requirements

**Information Exchanges**  
 Contributes to preparation of Client Requirements

**Collaboration Requirements**  
 Contributes to preparation of Client Requirements

**Design Assurance**  
 Contributes to preparation of Client Requirements

	0 Strategic Definition	1 Preparation and Brief	2 Concept Design	3 Spatial Coordination	4 Technical Design	4.5 Production Information	5 Manufacturing and Construction	6 Handover	7 Use
	Briefing			Design			Delivery		Evaluation
<b>Overview</b>	Client top requirements defined	Project feasibility confirmed and initial Project Brief defined. Revised after initial collaborative project team meeting	Apprentice and engineering student Project Brief defined. Revised after initial collaborative project team meeting	Apprentice and engineering student Project Brief defined. Revised after initial collaborative project team meeting	Apprentice and engineering student Project Brief defined. Revised after initial collaborative project team meeting	Apprentice and engineering student Project Brief defined. Revised after initial collaborative project team meeting	Apprentice and engineering student Project Brief defined. Revised after initial collaborative project team meeting	Apprentice and engineering student Project Brief defined. Revised after initial collaborative project team meeting	Apprentice and engineering student Project Brief defined. Revised after initial collaborative project team meeting
<b>Contingency Assessment</b>									
<b>Design</b>									
<b>Interface</b>									
<b>Construction</b>									
<b>Management</b>									
<b>Sustainability</b>									
<b>Statutory Requirements*</b>									
<b>Stage Outputs</b>									
<b>Information Exchanges</b>									
<b>Collaboration Requirements</b>									
<b>Design Assurance</b>									



# The Structural Plan of Work 2020

	0 Strategic Definition	1 Preparation and Brief	2 Concept Design	3 Spatial Coordination	4 Technical Design	4.5 Production Information	5 Manufacturing and Construction	6 Handover	7 Use
	Briefing		Design				Delivery		Evaluation
<b>Overview</b>	Client key requirements defined	Project feasibility confirmed and initial Project Brief defined. Project brief issues, including proposed location, project objectives and key risks identified.	Architectural and engineering scheme that also includes all and developed for use in the Project Brief	Architectural and engineering information that also includes all and developed for use in the Project Brief. Client Plan and Project Design Book. Client Plan and Project Design Book. Client Plan and Project Design Book.	Architectural and engineering technical design that also includes all and developed for use in the Project Brief. Client Plan and Project Design Book. Client Plan and Project Design Book.	Engineering information including structural design that also includes all and developed for use in the Project Brief. Client Plan and Project Design Book. Client Plan and Project Design Book.	Manufacturing, assembly and erection completed	Project handed over. Clients satisfied and all risks identified.	Post-use and asset management. Post-use and asset management. Post-use and asset management. Post-use and asset management.

**Basis of Structural Design**  
**Deliverables List**  
 Initial Structural Drawings / Model  
**Concept Structural Sustainability Report**

**Structural Drawings / Information Model**  
 spatially co-ordinated  
 Movement and Tolerances Report  
 Outline Structural Specification  
**Performance Specification for Contractor**  
**Design Items**  
**Outline Structural Sustainability Report**

**Structural Drawings / Information Model suitable for manufacture and construction**  
**Structural Specification**  
**Structural Sustainability Report**

	0 Strategic Definition	1 Preparation and Brief	2 Concept Design	3 Spatial Coordination	4 Technical Design	4.5 Production Information	5 Manufacturing and Construction	6 Handover	7 Use
<b>Interface</b>		Responsibility Matrix: Assist in the development of the Project Information Requirements and identify obligations/roles/risks	Responsibility Matrix: Provide information for preparation of Brief Plan and Project Bookings. Coordinate and manage any constraints	Coordinate, performance tolerance and a structural requirements and drawings, defining a clear condition of use and any constraints	Coordinate, performance tolerance and a structural requirements and drawings, defining a clear condition of use and any constraints	Coordinate, performance tolerance and a structural requirements and drawings, defining a clear condition of use and any constraints	Coordinate, performance tolerance and a structural requirements and drawings, defining a clear condition of use and any constraints	Coordinate, performance tolerance and a structural requirements and drawings, defining a clear condition of use and any constraints	Coordinate, performance tolerance and a structural requirements and drawings, defining a clear condition of use and any constraints
<b>Construction</b>		Client's Contractor Design Items. Consider constructability issues	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project
<b>Management</b>		Provide information for and contribute to Project Information Requirements and identify obligations/roles/risks	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project
<b>Sustainability</b>		Support the development of the Project Information Requirements, including the identification of key risks and opportunities for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project	Develop and contribute to 14-16 week management processes and design proposals for the project
<b>Statutory Requirements*</b>		Coordinate and contribute to 14-16 week management processes and design proposals for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project	Coordinate and contribute to 14-16 week management processes and design proposals for the project
<b>Stage Outputs</b> (Completed at end of stage)		Initial Project Brief, Site Information, Technical Conditions, Structural Survey Reports, Concept Design/Project Bookings	<b>Basis of Structural Design Deliverables List</b> Initial Structural Drawings / Model <b>Concept Structural Sustainability Report</b>	<b>Structural Drawings / Information Model</b> Spatially Co-ordinated Movement and Tolerances Report <b>Outline Structural Specification</b> <b>Performance Specification for Contractor Design Items</b> <b>Outline Structural Sustainability Report</b>	<b>Structural Drawings / Information Model</b> Spatially Co-ordinated Movement and Tolerances Report <b>Outline Structural Specification</b> <b>Performance Specification for Contractor Design Items</b> <b>Outline Structural Sustainability Report</b>	<b>Structural Drawings / Information Model</b> Spatially Co-ordinated Movement and Tolerances Report <b>Outline Structural Specification</b> <b>Performance Specification for Contractor Design Items</b> <b>Outline Structural Sustainability Report</b>	<b>Structural Drawings / Information Model</b> Spatially Co-ordinated Movement and Tolerances Report <b>Outline Structural Specification</b> <b>Performance Specification for Contractor Design Items</b> <b>Outline Structural Sustainability Report</b>	<b>Structural Drawings / Information Model</b> Spatially Co-ordinated Movement and Tolerances Report <b>Outline Structural Specification</b> <b>Performance Specification for Contractor Design Items</b> <b>Outline Structural Sustainability Report</b>	<b>Structural Drawings / Information Model</b> Spatially Co-ordinated Movement and Tolerances Report <b>Outline Structural Specification</b> <b>Performance Specification for Contractor Design Items</b> <b>Outline Structural Sustainability Report</b>
<b>Information Exchanges</b>		Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)
<b>Collaboration Requirements</b>		Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)	Project Exchange Information Requirements (PEIR)
<b>Design Assurance</b>		Initial review of key structural engineering data including successful delivery of project	Design review of structural provisions including stability, health, safety, cost, time, work and resources and risk	Design review of structural provisions including stability, health, safety, cost, time, work and resources and risk	Design review of structural provisions including stability, health, safety, cost, time, work and resources and risk	Design review of structural provisions including stability, health, safety, cost, time, work and resources and risk	Design review of structural provisions including stability, health, safety, cost, time, work and resources and risk	Design review of structural provisions including stability, health, safety, cost, time, work and resources and risk	Design review of structural provisions including stability, health, safety, cost, time, work and resources and risk



# Aims

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- Provide a **standard scope for sustainability reporting** to ensure alignment across the profession and encouraging adoption by clients;
- **Drive best practice** through the use of IStructE and other publications and guidance, using links provided in the template;
- **Record design decisions, principles and development** that drive towards a highly sustainable structure during construction and use, and maximising extension of life through circular economy principles;
- **Inform those constructing, using, retrofitting, and deconstructing** the structure, so that they can unlock every environmental benefit enabled by the design;
- **Promote the sustainable specification and procurement** of materials, and consideration of sustainability in tendering processes.

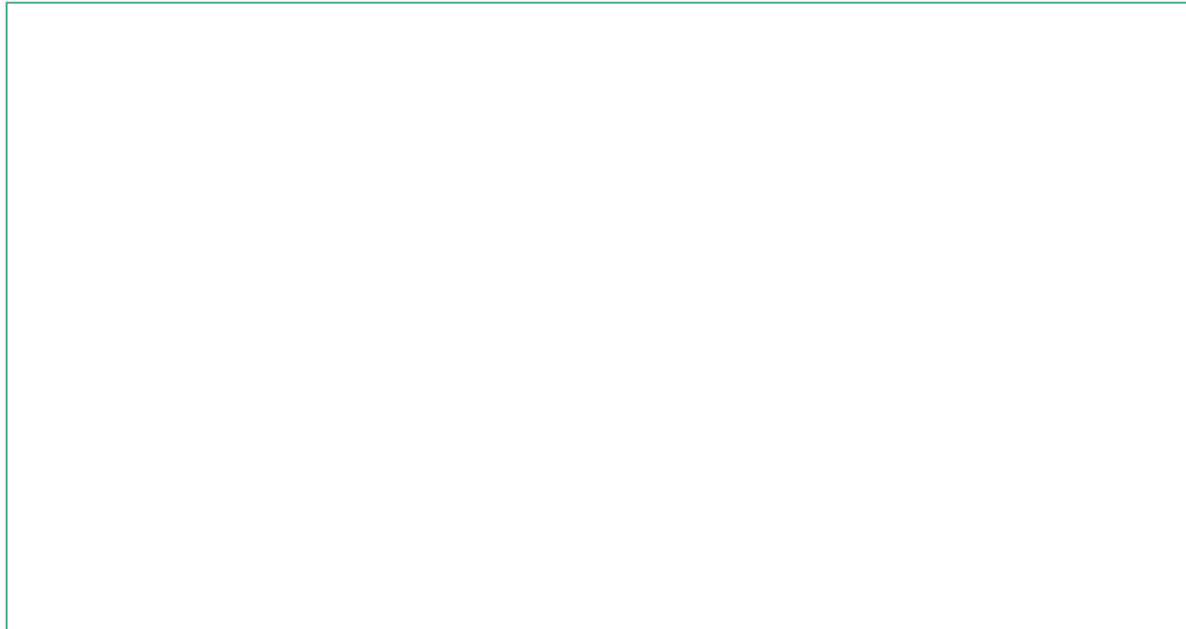
# Format - Example

## 1.7 Client ambitions and policy requirements

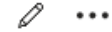
This project should meet your sustainability ambitions in line with your Corporate Social Responsibility Statements and wider commitments (e.g. Science Based Targets initiative) made to align with national legislation for achieving net zero.

The project must also meet requirements dictated by local and national planning policy and regulation and be resilient to future changes which may impact on planning approval as well as reputational impacts.

The following provides a summary of the requirements agreed for the Project to meet these ambitions and requirements.



### IStructE



There is a growing adoption of regulations, policy and standards which may affect the requirements of the project, as well as the Client commitments.

We recommend discussing this at early stages with the Client to gain a better understanding of their commitments and aims (using their Corporate Social Responsibility Statements and other public commitments to guide the conversation). The outcomes are much more likely to be achieved through discussion with the Client – working to understand their needs, and demonstrating how the sustainable design fits with this.

A non-exhaustive list of some policy requirements in the UK is provided below that may be used for reference and can be included in the box above where relevant.

However, make sure to consult sustainability and planning advisors to understand the exact needs. Note, if there are no specific policy requirements, we advocate using the GLA SI2 requirements for energy and carbon assessments which are current best in class and SI7 requirements for circular economy assessments.

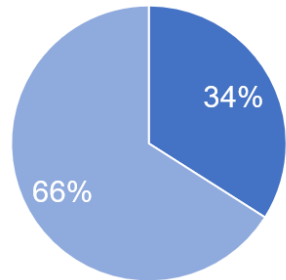
Accreditation – BREEAM and LEED both contain requirements for undertaking whole life cycle

# Introduction

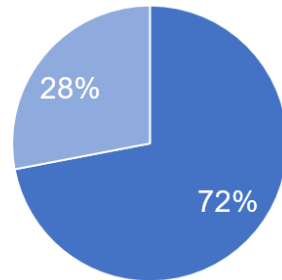


LCA Terminology	Product Stage (A1-3)			Construction Process Stage (A4-5)		Use Stage (B1-7)						End-of-Life Stage (C1-4)				Benefits/Loads Beyond System Boundary (D)	
	Raw material extraction	Transport to manufacturing facility	Manufacturing	Transport to construction site	Construction installation process	Use / application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Upfront carbon																	
Embodied carbon																	
Operational carbon																	
Whole life carbon																	

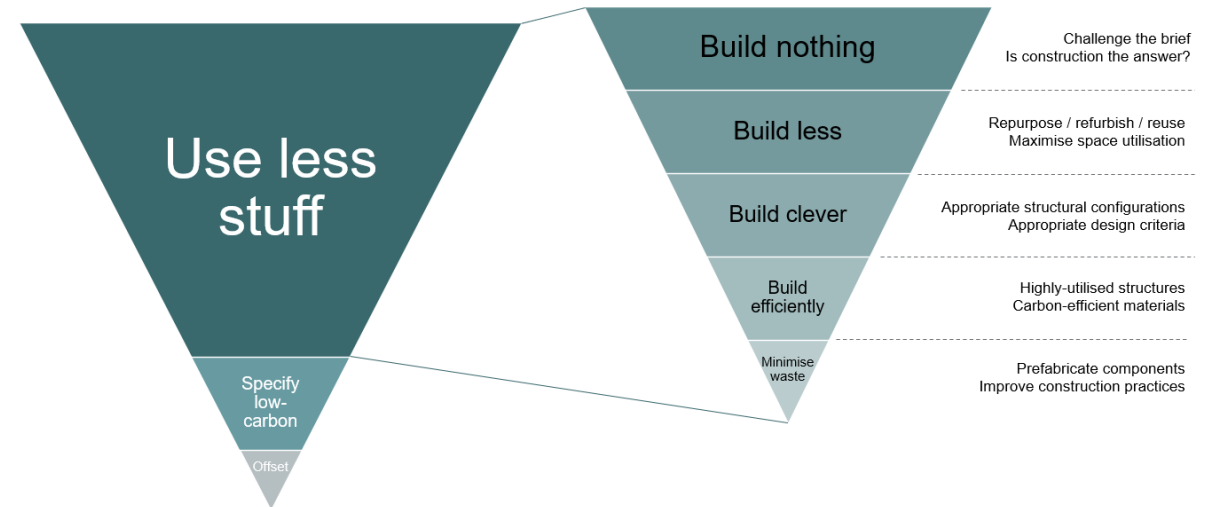
Meets building regulations



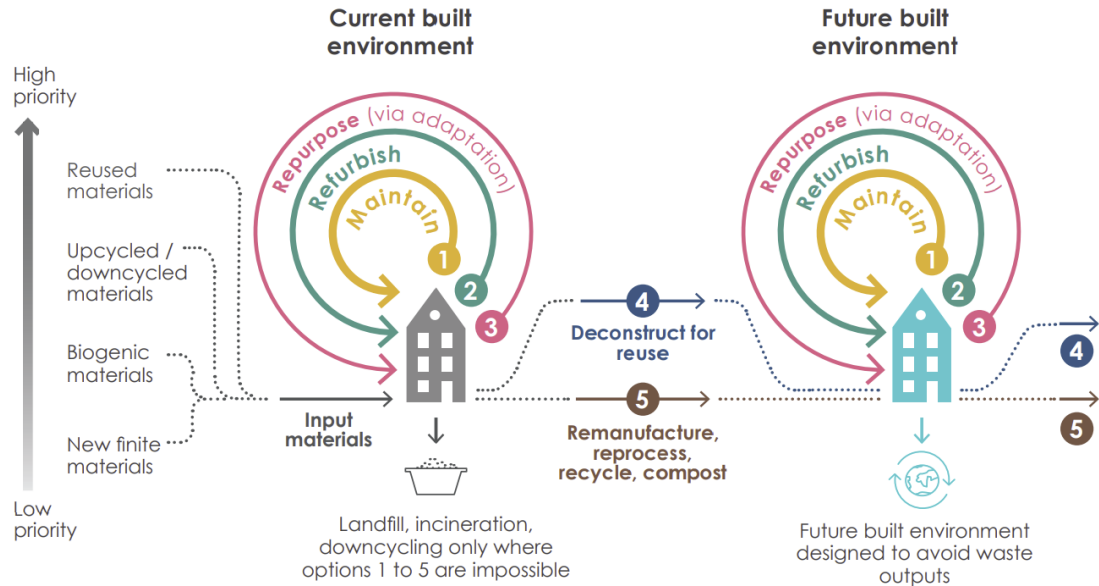
Modern, low-energy building



Progress between now and 2030?



# Introduction



## UK Net Zero Carbon Buildings Standard

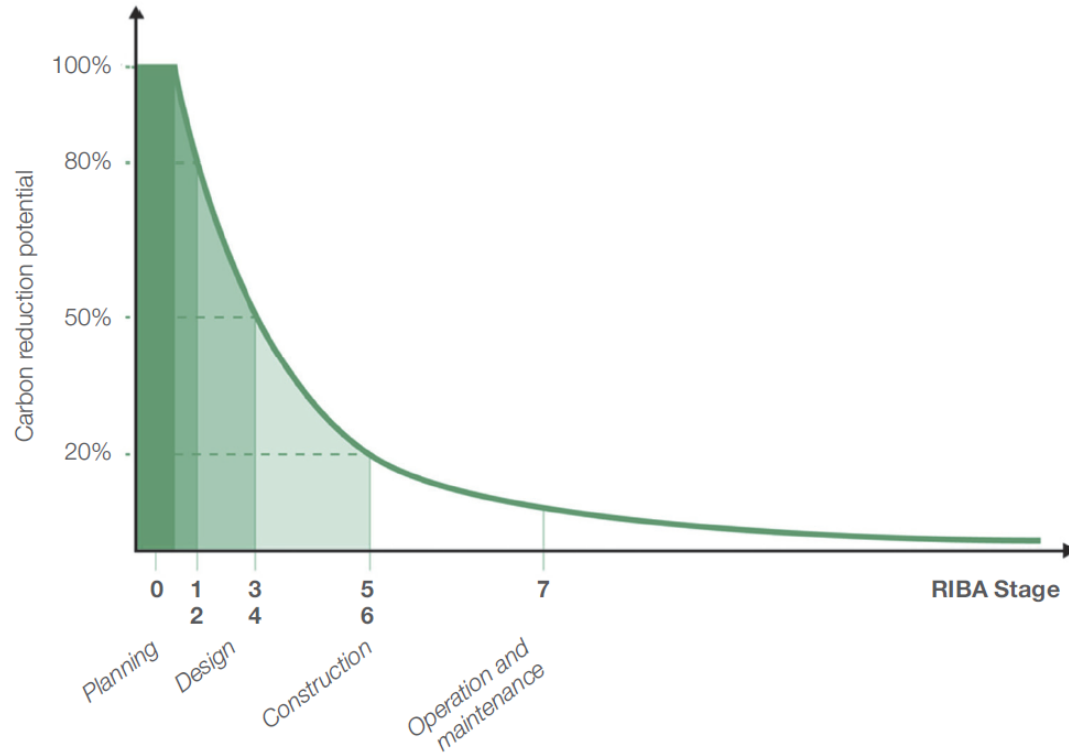
An introduction and how to get involved

May 2022





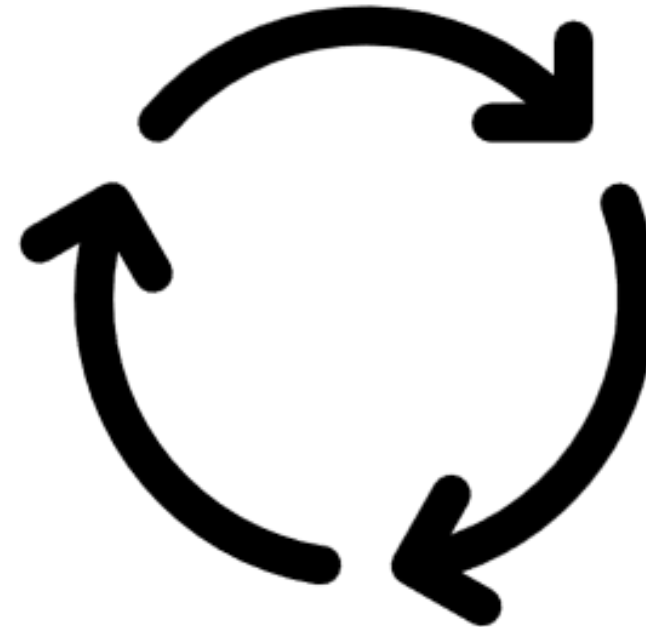
# The Brief



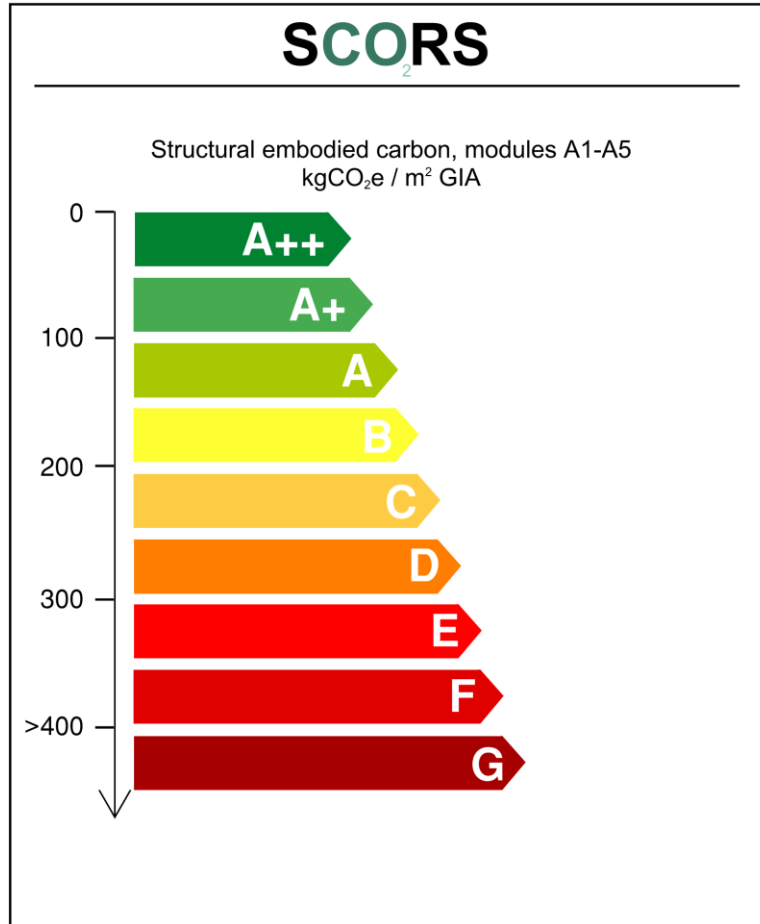
Consideration	Commentary
<b>1. Structural Grid</b>	Permitting reductions in allowable column spacing in the brief will have minor impacts on circulation and flexibility of space use, but will enable the most significant carbon reductions in a design – through understanding the carbon impacts of grid choices we hope that reductions in grid spacing can be considered
<b>2. Basements</b>	Reducing and eliminating basement demand may be achieved though relocating plant and utilising public infrastructure and active travel. Omission of basements will save significant amounts of carbon due to the carbon intensity of basements compared to above ground space and through understanding these impacts we hope that other solutions can be adopted
<b>3. Floor Heights</b>	Although not possible for all buildings, small increases in total height will increase structural zone allowances, enabling more efficient solutions and saving carbon. Through highlighting the carbon impacts of different options, we aim to establish an allowance that minimises carbon whilst meeting planning and spatial requirements of the brief.
<b>4. Column Alignment</b>	Permitting columns to run through to foundations (avoid transfer structures) may reduce open space and flexibility at lower levels but saves significant carbon emissions (and cost). Working collaboratively with the architecture team, we will look to present options to minimise transfer structure requirements with minimal impacts on layout flexibility.
<b>5. Cantilevers</b>	Reducing the need for cantilevers such as overhangs and non-enclosed balconies may impact on aesthetics and total GIA but will reduce carbon emissions. Again, we aim to provide solutions that minimise cantilevering structures whilst delivering aesthetic and spatial desirables.
<b>6. Loading and Serviceability Requirements</b>	Ensuring loading and serviceability requirements are to codes 'and no more' will save carbon associated with overly conservative allowances provided unnecessarily in some guidance documents. We will use our technical expertise to advice on requirements that are onerous and add carbon to the solution and ensure these are omitted where possible.
<b>7. Materiality</b>	The materials used on the Project will have a significant impact on carbon emissions. It is imperative that we utilise our available materials by using the right materials, for the right purposes, in the right place.

# The Brief

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# Carbon Calculations



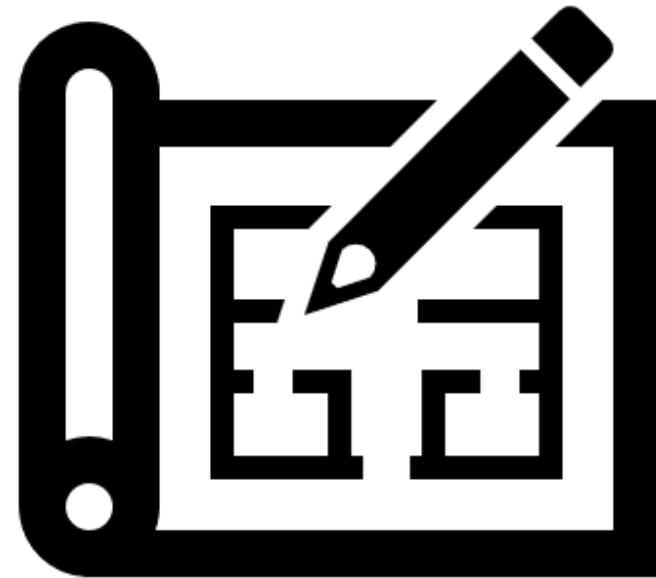
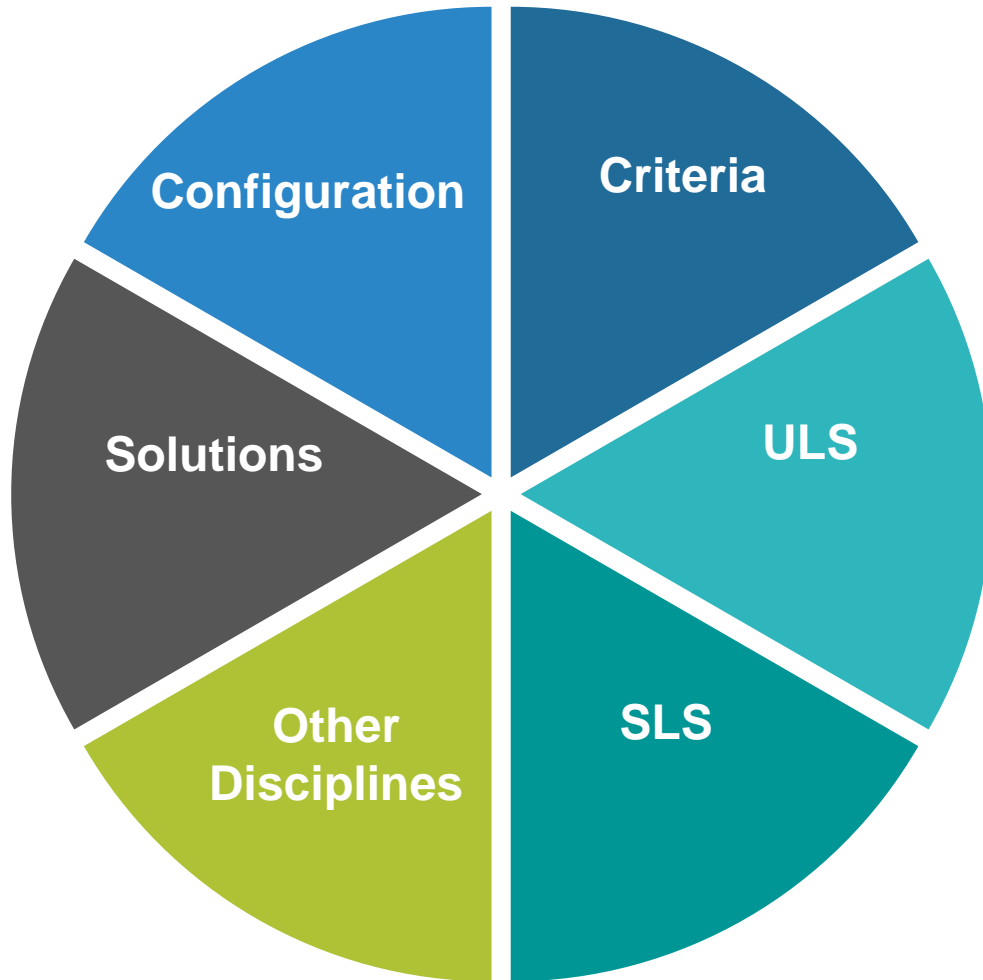
Element	Assumptions
Reinforcement	
Connections	
Fire Protection	
Corrosion Protection	
Screeds	
Secondary Steel	
Windposts	
Stairs	
Finishes	
Composite Systems	
Non-loadbearing Walls	
Other	



Material	A1-A3 Assumption	Other Assumptions
Concrete		
Steel		
Timber		
Masonry		
Other		

# Design Approach

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# Construction Approach

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1.

## Specification

- EPDs
- Steel Zero
- GCB/LCCG

2.

## Procurement

- Tenders
- R&D
- Incentives

3.

## Enabling In-Use & End of Life Benefits

- Testing/ Monitoring
- Detailing
- Information Sharing



# Sustainability Report Template

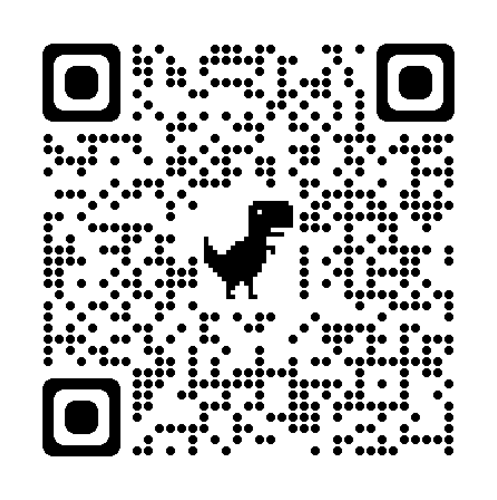
The Institution of  
**StructuralEngineers**

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## The Structural Plan of Work 2020



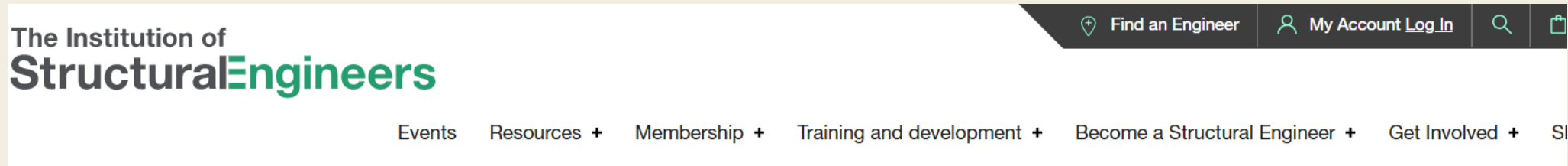
**Guidance**

**Author**  
Various

**Date published**  
2 July 2020

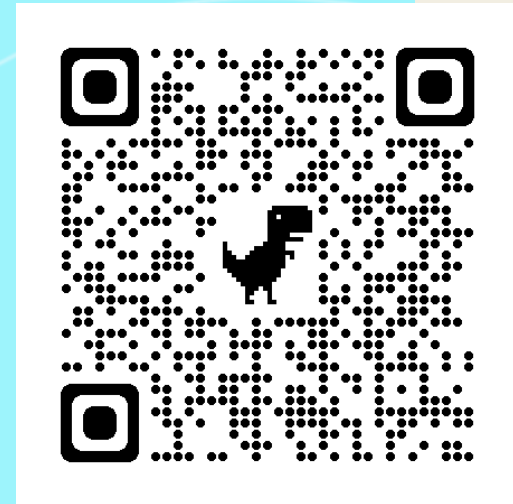
[Access Resource +](#)

# Sustainability Checklist



[← Back to Previous](#)

## SPoW Sustainability Checklist



This Checklist should be used to guide the structural engineering design process towards achieving sustainable outcomes, focusing on low carbon design over which the structural engineer holds significant influence.

# elliottwood

**Engineering a  
Better Society**

Thank you!