

Appendix 8.1: Legislation, Policy and Guidance

Legislation

Climate Change Act (2008)

The overarching Act in relation to climate is the Climate Change Act 2008. The Act introduces a legally binding target to reduce the UK's GHG emissions to at least 80% below 1990 levels by 2050. It also provides for a Committee on Climate Change (CCC) with power to set out carbon budgets binding on the Government for 5-year periods.

In the 2009 budget, the first three carbon budgets were announced which set out a binding 34% CO₂e reduction by 2020; and the Government has since adopted the fourth and fifth carbon budgets to reduce CO₂e by 50% by 2025 and 57% by 2030.

The CCC also produces annual reports to monitor the progress in meeting these carbon budgets. Consequent upon the enactment of the Climate Change Act, a raft of policy at national and local level has been developed aimed at reducing carbon emissions.

Climate Change Act: 2050 Target Amendment (2019)

In June 2019, the Government passed the Climate Change Act 2008 (2050 Target Amendment) Order 2019 to amend the 2050 carbon emissions target in the Climate Change Act 2008 from 80 % below 1990 levels to zero net carbon (i.e., 100 % below 1990 levels). This new target will essentially end the UK's contribution to climate change by 2050. The amendment to the 2008 Climate Change Act was in part to meet the UK's commitments as a signatory of the 2015 Paris Agreement, as well as the conclusion that net-zero is necessary, feasible, and cost-effective.

The Act clarifies that GHGs include:

- Carbon dioxide
- Methane
- Nitrous oxide
- Hydrofluorocarbons
- Perfluorocarbons
- Sulphur hexafluoride

Energy Act (2023)

The Energy Act makes a provision for the setting of a decarbonisation target range, duties in relation to it and for the reforming of the electricity market for the purposes of encouraging low carbon electricity generation.

EIA Directive (2014/52/EU) and Town and Country Planning (Environmental Impact Assessment) Regulations (2017)

The EIA Directive 2014 sets out the rationale for incorporating climate change into the EIA process. It states:

“Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change.”

The requirements of the EIA Directive (2014) have been adopted within Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) and require that the assessment provides:

“A description of the likely significant effects of the development on the environment resulting from, inter alia: (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change”.

Building Regulations Part L: Conservation of fuel and power (2021)

Part L (2021), under the Building Act 1984, sets energy efficiency requirements for dwellings and non-domestic buildings in England. It is one of 15 technical requirements outlined in Schedule 1 of the Building Regulations, focusing on conservation of fuel and power.

The 2021 revision introduces stricter carbon emission reduction targets, improved insulation standards, and updated methodologies like SAP10. Builders must ensure compliance through measures such as energy performance certificates and adherence to thermal efficiency benchmarks, working alongside related parts such as Part F (ventilation) and Part O (overheating). These updates aim to support the UK's broader net-zero carbon goals.

Planning Policy

National Planning Policy Framework (2024)

The National Planning Policy Framework (NPPF) sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, and that the planning system has three overarching objectives, one of which is an environmental objective:

- *“To protect and enhance our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy”.*
- Chapter 14 of the framework is entitled *“Meeting the challenge of climate change, flooding and coastal change”* and sets out the strategy for minimising the climate change effects of new development.
- Paragraph 164 states that *“new development should be planned for in ways that [...] can help reduce greenhouse gas emissions, such as through its location, orientation, and design. Any local requirements for the sustainability of buildings should reflect the Government’s policy for national technical standards”.*

- Paragraph 165 describes further that *“to help increase the use and supply of renewable and low carbon energy and heat, plans should: a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts); b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers”*.
- Paragraph 166 states that *“in determining planning applications, the NPPF requests that planning authorities should expect new development to: a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and b) take account of landform, layout, building orientation, massing, and landscaping to minimise energy consumption.”*

The National Adaptation Programme and Third Strategy for Climate Adaptation

The National Adaptation Programme sets out government’s response to the second Climate Change Risk Assessment, showing the actions government is, and will be, taking to address the risks and opportunities posed by a changing climate. It forms part of the five-yearly cycle of requirements laid down in the Climate Change Act 2008 to drive a dynamic and adaptive approach to building our resilience to climate change.

The Clean Growth Strategy

The Clean Growth Strategy sets out a comprehensive set of policies and proposals that aim to accelerate the pace of “clean growth”, *i.e.* deliver increased economic growth and decreased emissions. In the context of the UK’s legal requirements under the Climate Change Act, the UK’s approach to reducing emissions has two guiding objectives:

- To meet our domestic commitments at the lowest possible net cost to UK taxpayers, consumers, and businesses; and,
- To maximise the social and economic benefits for the UK from this transition.

The Strategy contains policies relating to the delivery of clean, smart and flexible power, including reducing power costs for homes and businesses and more transparent carbon pricing. It effectively replaces the “The Carbon Plan: delivering our Low Carbon Future” published in 2011.

Emissions from buildings are included in the 2050 target established by the Clean Growth Strategy. Heating in buildings and industry accounted for around 32% of total UK emissions from 1990 to 2015.

The UK's current emissions policies will also still continue rely on EU mechanisms to achieve its carbon budgets, such as EU products policy which sets minimum standards for a range of products to improve energy efficiency.

The Carbon Plan: Delivering Low Carbon Future

The Carbon Plan sets out the government's plans for achieving the emissions reductions commitment made in the Climate Change Act 2008 and outlines a strategy consistent with meeting the UK's 2050 targets.

Places for Everyone: Joint Development Plan

Planning policy for GMCA is included with the Places for Everyone Joint Development Plan, which is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been published by the GMCA on behalf of the nine districts.

Policy JP-S2 on 'Carbon and energy', states:

'The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

- 1. Promoting the retrofitting of existing buildings with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling;*
- 2. Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;*
- 3. Taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities;*
- 4. Increasing the range of nature-based solutions including carbon sequestration through the restoration of peat-based habitats, woodland management, treeplanting and natural flood management techniques;*
- 5. An expectation that new development will, unless it can be demonstrated that it is not practicable or financially viable;*
 - a. Be net zero carbon(29) which applies:*
 - from adoption– to regulated operational carbon emissions;*
 - from 2028 - to all emissions 'in construction'.*

From 2025 development should also calculate and minimise carbon emissions from unregulated emissions alongside regulated emissions.

Development proposals should set out how this has been achieved in an energy statement in accordance with the energy hierarchy, which in order of importance seeks to:

- i. *Minimise energy demand;*
- ii. *Maximise energy efficiency;*
- iii. *Use renewable energy;*
- iv. *Use low carbon energy; and*
- v. *Utilise other energy sources.*

From 2025 any residual carbon emissions that cannot be fully mitigated on-site should be offset, in agreement with the relevant local planning authority through a financial contribution to a carbon offset fund.

As an interim measure, development should be consistent with the 2022 Part L Building Regulations unless superseded by changes to building regulations and/or national or local planning policies.

- b. *Incorporate adequate electric vehicle charging points, in line with Part S of the Building Regulations, unless superseded by relevant Local Plan policies, to future proof for the likely long-term demand, taking account of the potential maximum energy demand for the site;*
- c. *Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date;*
- d. *In residential developments, achieve energy demand reductions in terms of space heat demand; hot water energy demand and the delivery of on-site renewable energy generation, in accordance with Table 5.1.*
- e. *For renewable energy generation priority should be given to PV installation where technically feasible, alternative technologies will be appropriate where the equivalent generation is evidenced.*
- f. *For non-residential developments, achieve at least BREEAM excellent standard (or equivalent) for the 'Ene 01 – reduction of energy use and carbon emissions' category rising to 'BREEAM outstanding' equivalent for ENE 01 from 2028.*
- g. *Include a detailed energy statement to demonstrate via site relevant evidence how the development has sought to maximize reductions in carbon emissions in line with relevant policy targets, including the minimisation of overheating risks and appropriate measures for post occupancy evaluation. Whole life cycle emissions should be considered where possible.'*

MCC Core Strategy

Planning policy for MCC is included within the core strategy which sets out the long-term strategic policies for Manchester's future development. The 'Addendum to Manchester Core Strategy 2024' must also be read alongside it.

Spatial objective S06 on 'Environment', states:

'Protect and enhance both the natural and built environment of the City and ensure the sustainable use of natural resources, in order to mitigate and adapt to climate change, support biodiversity and wildlife, improve air, water and land quality, recreational opportunities and provide networks of high quality green infrastructure, ensuring that the City is inclusive and attractive to residents, workers, investors and visitors.'

Policy EN4 on 'Reducing CO₂ emissions by enabling low and zero carbon development', states:

'The Council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO₂ emissions, and rising fossil fuel prices, through the following actions:

- *All development must follow the principle of the Energy Hierarchy, being designed:*
 - *to reduce the need for energy through design features that provide passive heating, natural lighting and cooling*
 - *to reduce the need for energy through energy efficient features such as improved insulation and glazing*
 - *to meet residual energy requirements through the use of low or zero carbon energy generating technologies*
- *Wherever possible new development and retrofit projects, including energy generation plant, must be located and designed in a manner that allows advantage to be taken of opportunities for low and zero carbon energy supplies.*
- *Where possible new development and retrofit projects will be used as a mechanism to help improve energy efficiency and provide low and zero carbon energy supplies to existing buildings.*
- *Where appropriate new development and retrofit projects will be required to connect to and/or make contributions to low or zero carbon energy schemes and/or to incorporate provision to enable future connection to any existing / potential decentralised energy schemes.*
- *The use of building materials with low embodied carbon in new development and refurbishment schemes.'*

Policy EN8 on 'Adaptation to climate change', states:

'All new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:

- *Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rain water permeability*

- *Reduction in urban heat island effect through the use of Green Infrastructure such as green roofs, green walls, increased tree cover and waterways*
- *The need to control overheating of buildings through passive design*
- *The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation*
- *Developers will be permitted to use green infrastructure elements such as green roofs, green walls, street trees and waterways to contribute to compliance with CO₂ mitigation under Policy EN6, subject to sufficient evidence to quantify their contribution to compliance.'*

Guidance

Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022)

The IEMA Guidance on Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022) provides a framework for practitioners involved in Environmental Impact Assessments (EIA). The document outlines the methodology for screening and scoping the boundaries of a GHG assessment, the methods for quantifying GHG emissions, and the criteria for evaluating the significance of emissions.

Climate Change Resilience and Adaptation (2020)

The IEMA Guidance on Climate Change Resilience and Adaptation (2020) provides a structured approach for integrating climate resilience and adaptation into the Environmental Impact Assessments (EIA). The guidance sets out the steps that should be taken to integrate climate adaptation and resilience issues into the EIA process.

RICS: Whole life carbon assessment for the built environment (2017)

This professional statement, aligned with EN 15978, provides guidance for conducting Whole Life Carbon (WLC) assessments for buildings and infrastructure. It quantifies environmental impacts in terms of Global Warming Potential, reported in CO₂ equivalent (CO₂e), and offers practical advice on organizing assessment results.

RICS: Whole life carbon assessment for the built environment (2023)

The second version of the RICS Professional Standard for the Whole life carbon assessment for the built environment launched in 2023 and effective from the 1 of July 2024, introduces mandatory requirements to comply with the WLC RICS methodology. It also expands the scope of the standard to the following built assets:

- New construction/ new-build assets;
- Demolition of existing assets;
- Retrofits, masterplans with multiple built assets; and,
- Fit-out assets.

A main contribution from this standard is the clear guidance on how to address the uncertainty in WLCs.

IStructE: How to calculate embodied carbon (2022)

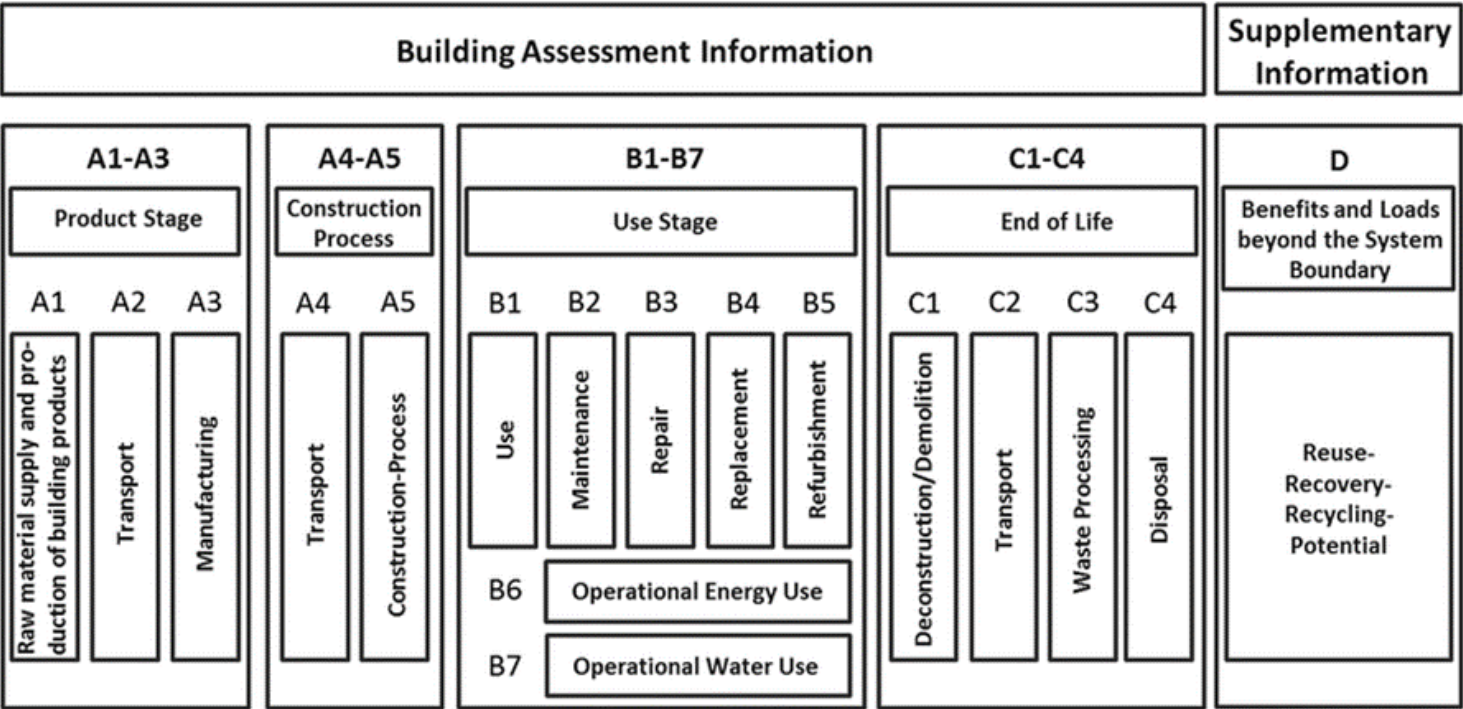
This guide offers practical steps and methodologies for calculating the embodied carbon of structural materials and systems. It aims to assist engineers and design professionals in quantifying and reducing the carbon impact of structures, promoting sustainable structural design practices.

It provides up-to-date carbon factors for widely used structural elements, including the embodied carbon content of typical concrete and steel components.

BSI: Sustainability of construction works – Assessment of environmental performance of buildings – Calculation method.

This standard provides a comprehensive framework for assessing the environmental performance of buildings through a life-cycle perspective. It details methods for calculating environmental impacts, including energy use, emissions, and material sustainability, to support the development of greener construction practice.

Appendix 8.2: Assessment Boundaries: Modular Life-Cycle Stages



Appendix 8.3: Site Layout



Appendix 8.4: Embodied Carbon Assumptions

Apartment Blocks	Specifications, notes and assumptions	GIA	Unit
Block A		4,461	m2
Block B		3,523	m2
Block C		5,556	m2
Block D		4,561	m2
Block E		3,883	m2
House Types			
Hickory (end)		3,153	m2
Hickory (mid)		928	m2
Olive		573	m2
Linden		269	m2
Aspen (end)		988	m2
Aspen (mid)		179	m2
Spruce (end)		4,082	m2
Spruce (mid)		3,298	m2
Foxglove		552	m2
Larch (end)		1,407	m2
Larch (mid)		1,752	m2
ADU-2B		180	m2
ADU-4B		208	m2
Acacia		524	m2
Cedar (end)		2,097	m2
Cedar (mid)		610	m2
Soft Landscape & Trees			

T01 Specimen Tree	6-7m height and minimum clear stem of 2m	13	#
T02 Street Tree	Extra heavy standard trees, with a height of 3.5-4.5 and minimum clear stem of 1.75m	30	#
T03 Standard Tree	Heavy standard trees, height of 3.5-4.25m and minimum clear steam of 1.75m	120	#
T04 multi stem	Multistem with a height of 3-4m	75	#
T05 hedgerow tree	10-12cm girth, with a height of 3-3.5m	28	#
H01 native hedgerow	minimum 800mm height.	40	m2
H02 ornamental hedgerow	minimum 800mm high	904	m2
PT01 ornamental garden		920	m2
PT02 shrub planting	0.9 height	1,615	m2
PT03 wildflower meadow & bulb planting		193	m2
PT04 amenity grass		15,120	m2
PT05 scrub planting		269	m2
PT06 perennial planting		213	m2
PT07 marginal		144	m2
PT08 rain gardens / swales		489	m2
PT09 Woodland		1,779	m2
PT10 Sedum roof		190	m2
Hard Landscape			
Public realm areas	Assumed light duty asphalt paving	1,225	m2
Pedestrian pavement areas	Assumed self binding granite pavement and granite kerbs	3,635	m2
Asphalted Roads	Assumed Paved road - 30mm Asphalt paving, Base Course & Painted Line Marking	7,310	m2

Other hard landscaped areas	Assumed light duty asphalt paving	9,220	m2
Infrastructure			
Manholes		92	#
Drainage Pipe 150 ø	Assumed 10mm thickness	2,405	kg
Drainage Pipe 225 ø	Assumed 10mm thickness	308	kg
Drainage Pipe 300 ø	Assumed 10mm thickness	615	kg
Drainage Pipe 375 ø	Assumed 10mm thickness	610	kg
Drainage Pipe 450 ø	Assumed 10mm thickness	4,562	kg
Drainage Pipe 600 ø	Assumed 10mm thickness	2,640	kg
Drainage Pipe 750 ø	Assumed 10mm thickness	1,933	kg
Drainage Pipe 900 ø	Assumed 10mm thickness	1,817	kg
Drainage Pipe 1200 ø	Assumed 10mm thickness	2,957	kg
Earthworks to accommodate Infrastructure - Asphalted roads	Assumed 2m deep - Based on asphalted roads - Cut & fill onsite	14,620	m3
Earthworks to accommodate Infrastructure - Pedestrian areas	Assumed 1.5m deep - Based on asphalted roads - Cut & fill onsite	5,453	m3
Utilities			
Substations construction		5	#
Mains Phasing		15	#
Street Lighting s38	Street lighting	30	#
Street Lighting s278	Street lighting	18	#
Street Lighting Private	Street lighting	70	#
Diversions	External Works	158,138	£
Disconnections	External Works	16,000	£
Street naming and numbering	External Works	10,000	£

Smart EV charger supply only		874	#
BT & Hyper optic Services		2550	#
MDL Electric supply 20 kva	Electrical Services	20	kVA
High Voltage Electrical Cable	Assumed 0.232 kg/m	727	kg
Low Voltage Electrical Cable	3-Core300mm ²	6,095	lm
Gas Pipework	Average pipe 90mm - Assumed Steel	3,950	lm
Water Pipework	Average pipe 90mm - Assumed Steel;	4,425	lm
Data Pipework	Average 75mm - Assumed HDPE 1.235 kg/m	6,501	kg