Introduction

# Innovation

Guidance on how to deliver innovative and sustainable development

## Introduction

Making buildings and places more sustainable is key to reducing our carbon footprint, and improving quality of life. It should be a consideration from the outset across all design decisions.

A sustainable design will reduce its environmental impact during construction and throughout the lifetime of the building, not only through its material impact but also in the decisions that eventual users make. Proposals should seek to reduce the release of carbon at all stages of design and construction when planning developments, while opportunities for carbon capture and storage should be sought in both the immediate and future life of buildings and spaces.

New developments should aim to exceed the recommendations of the Building Regulations Approved Documents Part L and seek to be carbon neutral.

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## Innovative Design

Exceptions to the code may be considered acceptable where the design, in terms of form, style, materiality and sustainability of the development, is of exceptional quality. The design must:

- be truly outstanding, reflecting the highest standards in architecture;
- help to raise standards of energy efficient design and construction;
- significantly enhance its immediate setting and be sensitive to the defining characteristics of the local area and contribute to the sense of place and identity.

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## Passive environmental design

- Consider the use of passive house principles in the design of new development. Applicants should employ a “fabric first” approach, enhancing thermal elements utilising high levels of insulation, energy efficient windows, no thermal bridging, air–tight construction and mechanical ventilation.
- Consider the use of building forms which minimise the surface area to volume ratio. Blocks of houses can provide more efficient building envelopes for example.
- New developments should exceed the requirements of the Building Regulations Approved Documents Part L and seek to be carbon neutral.
- Use tree planting to provide natural shade and shelter, subject to the guidance and code contained in the ‘Landscape and Nature’ chapter. Deciduous trees can provide shade during the summer while allowing light to permeate during the winter months. Where overshadowing is not

problematic, evergreen trees can be effective in limiting exposure to cold winds.

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## Roofs

- Roofs are an opportunity for rainwater collection which could be used for non-potable purposes such as flushing toilets. The collection and diversion of rainwater can also mitigate flood risk and control run-off as part of a sustainable drainage system.
- Where flat roofs are considered to be appropriate, green roofs can provide a natural way to insulate and regulate internal temperatures as well as capturing carbon, slowing rainwater runoff and increasing biodiversity amongst other benefits.

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## Low and zero carbon (LZC) technology

- Low and zero carbon technology (LZC) can include:
  - ➔ Solar hot water
  - ➔ Air Source Heat Pumps
  - ➔ Ground Source Heat Pumps
  - ➔ Combined Heat and Power
  - ➔ Biomass heating
  - ➔ Solar Photovoltaics
  - ➔ District Heating Network
  - ➔ Hydro power
  - ➔ Wind turbines

- The additional space required to incorporate technology should not come at the detriment of the design of the development.
- Consider the visual impact of LZC technology on the building and wider site. External surface mounted equipment must be sensitively located and well screened from the public realm.
- Efficient heating and ventilation systems, and energy efficient illumination with automated switching should be used, particularly to communal areas.
- The integration of solar or photovoltaic panels into the envelope of the buildings should be well considered from the outset, avoiding bolt–on solutions. Large roofs associated with commercial buildings often provide an unobstructed surface for capturing solar energy through solar panels for use in heating the building or photovoltaic panels for use in generating energy.
- The design of commercial buildings also lend themselves to the use of technological solutions as part of an environmental strategy and can include: heat pumps, automatically dimmed or switched LED lighting and monitoring technology.
- In larger schemes the use of district heating networks or centralised energy production is encouraged, and where possible, developments should aim to connect to existing heating networks.

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## Modern methods of construction

- The use of Modern Methods of Construction (MMC) are encouraged and this Design Code does not seek to constrain technical and environmental innovation. However, where MMC are implemented, the quality of design

and materials used must seek to equal that used in high quality buildings of traditional construction.
- Where the use of traditional materials is not suitable when employing MMC, applicants must carefully consider the visual impact and durability of materials and ensure they are appropriate in their context. Materials that weather poorly must be avoided.
- MMC may not be appropriate on sites where the constraints of the pre-fabrication process limit the range and quality of the detailing or materials that can be used.

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## Building Lifecycle

- Applicants should try to specify products that are made from recycled materials and/or that are easily recyclable at the end of the building's life, whilst being appropriate to the building's context and design. Allowances should be made for the repurposing or adapting of building elements without the generation of additional waste or recycling.

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## EV charging

- All developments must seek to optimise EV charging points and must comply with the requirements set out in Building Regulations 'Infrastructure for the charging of electric vehicles Approved Document S'.
- Applicants are encouraged to demonstrate that they have optimised the provision of EV charging points on all developments. It is expected that

the passive EV charging infrastructure will be provided across the site to ensure that every car parking space and driveway can be installed with active infrastructure at a future date.