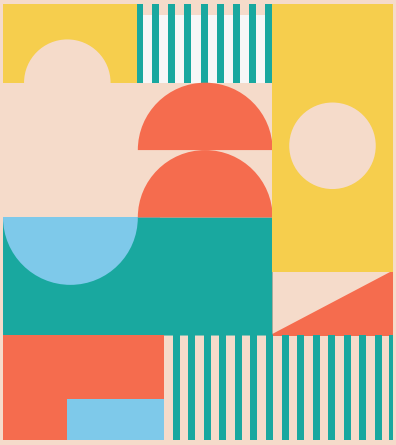
Sustainable Housing Design Guide 2021

CAMBRIDGE CITY COUNCIL



Produced by Pollard Thomas Edwards
with **Cambridge City Council**

CAMBRIDGE
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This publication is now current and was noted at the Housing Scrutiny Committee, 20 January 2022

Welcome to the Cambridge Sustainable Housing Design Guide 2021

Cambridge is a rapidly growing city and one of the UK's regional success stories. It is globally attractive as a business destination, as well as being a net contributor to the Exchequer at £1.5bn a year (Cambridge Ahead, CPIER, 2020). At the same time, Cambridge has been identified as the UK's least equal city (Cities Outlook, Centre for Cities, 2018) and a lack of affordable housing limits its growth.

There is a Housing Emergency in Cambridge. The median household affordability ratio (2018-2019) was 18.5 compared to a seven-year average of 14.3. The crisis affects low- to medium-income households, and demands a strategic programme level response. The council have responded to this emergency with the 500 programme, delivery of 542 council-rented homes by 2024 and the proposed 1,000 programme which is targeting the delivery of at least 1,000 council rented homes by 2030.

In 2020, the council declared a Climate Emergency and this, too, demands a response from the council. Commissioned by the council, The Road to Net Zero report by Buro Happold was approved in 2021 and outlines the route to Net Zero Carbon developments by 2030, detailing sustainability targets in energy, carbon, water, car parking, EV charging and biodiversity to attain. These sustainability targets are ambitious and challenging. This design guide will be updated if legislation changes and will take into account learning from the Council's new developments including its Passivhaus and Net Zero pilots. As well as examining new technologies that are coming onto the market, such as battery technologies and hydrogen boilers, and will take into consideration what impacts there will be on tenant energy bills, carbon reduction and annual maintenance costs.

We believe that the delivery of council homes can play a significant role in making developments sustainable, helping residents out of fuel and water poverty as well as ensuring affordable long term annual maintenance costs. By focusing on both affordability and sustainability we believe we can improve the health and wellbeing of residents and deliver high quality developments continuing the tradition of high-quality placemaking and architecture in Cambridge.

The Sustainable Housing Design Guide 2021 for council homes sets higher standards of development, leading by example to inspire others to deliver better. This Guide sets out a clear statement of our aspiration for developing quality homes and new communities that are sustainable, tenure blind, accessible, safe and secure, improving health and wellbeing.

Claire Flowers
Head of Housing
Development Agency,
Cambridge City Council

Executive summary
The Sustainable Housing Design Guide 2021 provides a summary of the council's expectations for sustainable design and placemaking for council homes.

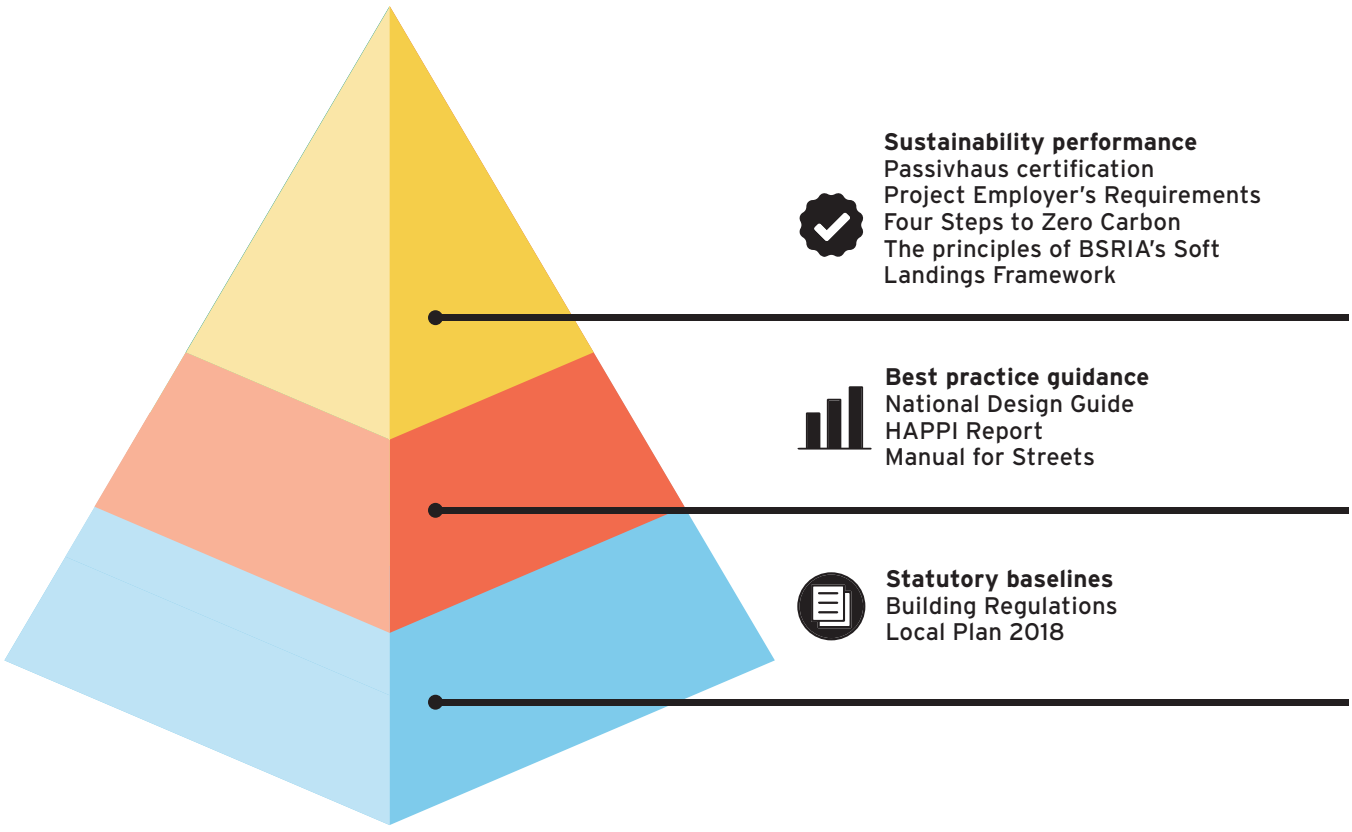
The Sustainable Housing Design Guide 2021 will guide the strategic brief for the project manager and design team and will form an integral part of any new designer's or developer's appointment. Integral to this Design Guide is the Buro Happold Four Steps to Zero Carbon, which establishes our roadmap to Net Zero Carbon, the 2018 Local Plan and relevant SPDs and our Standard Employer's Requirements (ER's) which provide more detailed technical guidance and specification.

From 2021 designs for all council homes must target Passivhaus certification and the sustainability targets outlined in the Four Steps to Zero Carbon report. From 2030 all council homes will be expected to target Net Zero Carbon.

It is vital we create places that are positively integrated into their communities and that engender "pride of place". Working with the MHCLG National Design Guide ten characteristics of a well designed place, this document draws together the many positive placemaking outcomes of sustainable design. Our text highlights how sustainable design and a spirit of good placemaking can work hand in hand to give us great places to live.

Delivering sustainable design is a rewarding but also challenging and layered process, requiring equal combinations of efficient technical performance and creative place-led design. While not a standalone document, the Sustainable Housing Design Guide 2021 is intended as a useful, design and place focused, primer – drawing together the varied tiers of standards and guidance that must be considered to create our housing projects.

The pyramid below illustrates how three tiers of standards work together and build upon each other. It establishes a hierarchy of design challenges, from a baseline of statutory standards through best practice benchmark guidance which must be followed, and ultimately the two stages of Passivhaus certification, the technical specifications of our ER's, and the principles of BSRIA's Soft Landings Framework.



The Sustainable Housing Design Guide 2021 (SHDG) should be read as a whole, alongside the further documents it refers to. Headline design and development guidance found within this document include the following project requirements:

Context
The design process must begin by demonstrating an understanding of the site, its context and the opportunities and constraints it presents for providing sustainable development.

Identity
Developments must convey "pride of place" by showing consideration to the quality of the built environment, coherent architecture, high quality landscaping and open space and generate a positive sense of belonging for residents which encourages a contribution to the upkeep of places in the long-term.

Built form
Proposals must make good use of land and resources. Compact forms of development must be used, and must show how they support communities, services, and promote walking and social connections.

Movement
Proposals must promote walking, cycling and public transport and reduce car dependency, with a target parking ratio of 0.5 spaces per home. Cycle parking must meet the Local Plan 2018. Local streets, public spaces and other routes must form convenient networks that are people, walking, and cycling focused.

Nature
All developments must provide a 20% biodiversity uplift on existing site conditions. Biodiverse SuDS should be incorporated into green landscape to provide habitat and give access to nature alongside play, activities and movement.

Public spaces
The quality of the spaces between buildings must be considered from the start of a project, and landscapes treated as important as the buildings themselves, meeting biodiversity targets and promoting walking and cycling. Public spaces within developments must be well sited, accessible, safe, secure, tenure blind and inclusive areas that promote social interaction. Developments must be safe and secure, meeting the SBD Gold Standard Certification.

Uses
Developments must be socially inclusive, diverse, and cohesive, with a mix of homes reflecting the needs of people of different ages and abilities and the council's housing requirements. Proposals should aim to reinforce existing neighbourhoods by enhancing local transport, facilities, community services and maximising their potential use.

Homes and buildings
All homes must meet the Nationally Described Space Standards and must be accessible to Part M4 Category 2 or above. The internal environments and associated external spaces that they provide will support the health and wellbeing of their residents and all who experience them.

Resources
Developments must achieve full Passivhaus certification and must reduce water demand, meeting a target of 90l/ppd. The principles of BSRIA's Soft Landings Framework must be followed to address resident fuel and water poverty.

Lifespan
Developments must be built to last, with maintenance, management and running costs considered at the outset – including addressing fuel poverty. Landscape and building designs must show how they incorporate long-term resilience to future climate change. Our developments must follow the principles of BSRIA's Soft Landings Framework.

To ensure good placemaking all developments must follow each of the principles and characteristics of The National Design Guide.

Sustainable neighbourhoods should incorporate a wide range of homes
Knights Park, Eddington, North West Cambridge. **Pollard Thomas Edwards and Alison Brooks Architects**

Background to this Design Guide and how to use it
This Design Guide will guide the strategic brief for the project manager and design team and will form an integral part of any new designer's or developer's appointment. Integral to this Design Guide is the Buro Happold Four Steps to Zero Carbon, which establishes the council's roadmap to Net Zero Carbon, the 2018 Local Plan and relevant SPDs and our Standard Employer's Requirements which provide more detailed technical guidance and specification.

From 2021, the design of council homes must target Passivhaus certification and the sustainability targets outlined in the Four Steps to Zero Carbon report. From 2030 all council homes will be expected to be designed to target Net Zero Carbon.

The principles in the guide are applicable to all housing developments delivered by the council and not just those delivered by the HDA. This guidance is also freely available to use for anyone seeking to deliver high quality sustainable new homes, be that in Cambridge or more widely.

2021 revised version
The council has led on sustainability and design, and its 2018 Local Plan demonstrates a commitment to developing schemes above the minimum standards. The Sustainable Housing Design Guide (SHDG) was first produced in 2017 and enhanced these standards further. This 2021 revised version builds on and maintains the Guide's founding objectives and outlines where standards are above the 2018 Local Plan.

The council has led the way on sustainable design, Akeman Street, Cambridge. **Mole Architects**

The bulk of this document focuses on bolstering the quality of our sustainable placemaking guidance. We have recast and simplified our previous 26 design objectives around the ten characteristics of a well designed place, as set out within the recently published MHCLG National Design Guide. Using this framework has allowed us to focus on how sustainable principles should work together to make a successful places. Our document cross-references with the MHCLG National Design Guide and should be read alongside it.

Where references to technical standards are given, we have made use of the Buro Happold **Four Steps to Zero Carbon**. This document, commissioned by the council, provides a technically focused roadmap to Net Zero Carbon where energy, water and space, performance specifications and minimum requirements are included. The council is targeting Passivhaus from 2021 and Net Zero Carbon from 2030. There are also sustainability targets for water, car parking, EV charging, overheating and biodiversity. With their complementary placemaking and technical focus, the **SHDG (2021)** and **Four Steps to Zero Carbon** are intended to work alongside one another.

By adopting these documents and goals we intend to help establish, in development terms, a toolbox of technical and placemaking principles, beyond baseline planning and Building Regulations, that work together to give measurable outcomes. Beyond environmental and energy sustainability, it is important to note that these outcomes also include social sustainability in terms of health and wellbeing and economic sustainability in terms of operational cost.

It should be noted that this guide is not a comprehensive standalone document. It is intended as a helpful, illustrated summary of the principles that we expect development teams to adopt when developing sustainable housing projects, and the detailed guidance that should be referred to when doing so. Where reference is made to policy requirements for issues such as car and cycle parking, residential space standards and accessibility standards, it should be noted that this document is not formal planning guidance. A summary of local planning guidance documents is included in the appendices of this document.

Compliance and Design Compliance Checklist
Guidance within the Sustainable Housing Design Guide contains two levels of compliance:

Where compliance is **mandatory**, the word **'must'** is used.

Where compliance is **recommended**, the word **'should'** is used.

We know that applying the targets on a site by site basis will mean challenges and constraints. The key for design teams is to ensure they communicate where targets may be difficult to achieve early on in the design process.

Where development teams are unable to follow mandatory guidance due to financial, viability and or technical constraints, design teams will be expected to justify why they cannot be met and provide alternative sustainable design approaches.

Where there are financial viability and technical constraints in meeting Passivhaus certification or other sustainability targets, design teams will be expected to justify why targets cannot be met and provide alternative sustainable design approaches.

The council is open to innovation and to alternative sustainable design approaches based on learning from council and other projects but should ensure that any sustainable design solution achieves the carbon emissions reduction, energy bills and annual maintenance costs to be equivalent to Passivhaus certification.

Where development teams do not follow recommended guidance, the departure must be justified and be shown to be consistent with good placemaking and the council's wider sustainable design objectives.

Note that these targets are assumed for sites where planning permission has not been granted.

Design teams are to complete the **Design Compliance Checklist** which is included within the appendices to this document. The checklist is a means to record and monitor design compliance with this document's design principles over the life of the project and must be reviewed and completed at each project stage and handed to the council's project manager.

The design team will also need to ensure that their designs comply with the council's **Employer's Requirements Checklist** which is included in the appendices. This checklist will be reviewed by council development, asset management, housing, communities, commercial, open spaces and finance teams before planning submission and before any build contract is signed.

Collaboration between designers, consultants, contractors, council's teams and resident representatives is essential and the principles of the BSRIA Soft Landings Framework must be followed. It is essential that design teams use the learning from the council's current and past schemes as well other developments to inform the design.

Green mews streets, Accordia, Cambridge.
Grant Associates and FeildenCleggBradleyStudios

02

Placemaking guidance: Applying the ten characteristics to Cambridge sustainable housing design

The values underlying good sustainable design are the same as for making any successful place - bringing together buildings, landscapes, and infrastructure to create a characterful whole. Many sustainable principles go beyond technical specifications and need to be delivered through thoughtful placemaking – recognising that the spaces between buildings are as important as the buildings themselves.

Reflecting the universal need for good design, this guidance makes use of the MHCLG National Design Guide and National Design Code ten characteristics of good design. Such design values are already well established in Cambridge and are reflected in the 2010 Cambridge Quality Charter for Growth '4 Cs' of Community, Connectivity, Climate and Character.

For each of the ten characteristics we have set out some of the key issues we expect to be addressed in our housing projects. These are not exhaustive, but aim to highlight areas which we think might have specific implications for delivering the objectives of sustainable design. Cross-references are given to link with the National Design Guide, which should be read alongside each section of this document, along with other helpful references such as the council's Four Steps to Zero Carbon, HAPPI, and Manual for Streets.

Context

Design must be developed with a shared understanding of the site's opportunities and constraints. An early design workshop, New Ground Cohousing, Barnet, London. **Pollard Thomas Edwards**

In developing new proposals, the design process must begin by demonstrating an understanding of the site, its context and the opportunities and constraints it presents for providing sustainable development. Creating a positive and integrated sense of place helps to foster a sense of inclusion, community cohesion and belonging, contributing to the sustainable design objectives of good health and wellbeing, sustainable communities and social value.

Four Steps to Zero Carbon
Section 15

National Design Guide
Guidance C1, C2 and C3

Manual for Streets
Section 3

Local Plan 2018
Policies 28, 55 and Section 7

An understanding of context
An understanding of context is a vital first step in delivering well integrated high-quality development. The context of a proposal must be considered early on as part of the design process. Existing features, opportunities, and constraints on the site, such as trees, topography and orientation, must be identified, along with the surrounding networks of buildings, routes, ecology and landscapes. Emphasis must be put on opportunities for developments to create networks for people and nature, and should target a 20% improvement in biodiversity within the site. They must link well into their context, promote cohesion and enhanced sustainable lifestyles for the benefit of new and existing residents.

Scale and form
Proposals for new development must create a scale and form that enhances urban design and that is appropriate to existing buildings, the public realm and open spaces. A development that responds positively to its context is one that will either enhance areas of existing high-quality, or will seek to introduce new distinctive qualities to areas of weaker character. Designs must complement the positive local identity of an area, but well-designed places do not need to copy their surroundings in every way. It is appropriate to introduce elements that reflect how we live today, to include innovation or change such as increased densities, reducing car dependency, promoting active lifestyles and to incorporate new sustainable features or systems.

The outcome of this thorough understanding and well considered response must be the successful integration of sustainable new housing development into the social fabric and the natural, built, and historic environment.

New developments should complement their context
Woodside Square, Muswell Hill, London. **Pollard Thomas Edwards**

Identity

Arrangements of buildings, using families of details, can create a strong sense of identity
The Avenue, Saffron Walden. **Pollard Thomas Edwards**

Developments must convey "pride of place" by showing consideration to the quality of the built environment, coherent architecture, high quality landscaping and open space and generate a positive sense of belonging for residents which encourages a contribution to the upkeep of places in the long-term.

There are many aspects that come together to help deliver "pride of place": delivering a feeling of belonging and regarding a place as home. As well as the quality of individual buildings, these aspects include identity at the level of the home, the street and the neighbourhood and a positive physical and social integration with the surrounding context.

In bringing about "pride of place" there is a role for developers and their design teams in engaging with the community in the development of schemes and in the long-term support that is offered to them. Consideration must be shown to have been given to the quality of the built environment, coherent architecture, high quality landscaping and open space, with each element coming together to deliver a built environment that residents will take pride in.

Consideration of identity must include:

- The role of quality of finish and the interplay between homes and the spaces around those homes in delivering schemes in which residents have a sense of "pride of place", and can contribute to the upkeep of those places. "Pride of place" must be visible;
- Impact of car and service vehicles on sense of place must be minimised. Local street networks must prioritise their role as a setting for the people and homes that surround them, promoting landscape, sociability, play, walking, and cycling;
- Landscape design must be an integral element of all proposals maximising biodiversity, with a multifunctional approach taken to landscape design wherever possible. Landscape design must not be seen as an issue for the reserved matters stages of the planning process. On larger sites, a landscape strategy must be devised that includes plans for implementation, management and maintenance;
- Sustainable Drainage Systems (SuDS) should be integrated into landscape design. Water management within the landscape is a special characteristic of Cambridge, and the SuDS should be a recognisable part of a development's identity;
- Tree planting must be utilised wherever possible to enhance biodiversity, lend character, ambience and shade. Trees can soften the impact of parking, help enhance biodiversity (if the right species are chosen), absorb CO2, improve air quality and provide evaporative cooling – improving the microclimate around homes;
- Street trees must be carefully specified, located and planted within tree pits, taking account of their eventual size and being kept clear of underground services, with coordination between the landscape architect and services consultant;
- Street trees should be planted as semi-mature with a stem girth measurement of at least 150mm, this is to give an established landscape structure from the outset;
- Public open spaces should be located and used to give schemes an identity, and must ensure that spaces are tenure blind and designed for everyone and are multifunctional;
- Long-term management plans must be provided for all communal spaces and public open spaces;
- Questions relating to "pride of place" should be included in post occupancy resident surveys.

Four Steps to Zero Carbon
Page 4 and Section 15

National Design Guide
Guidance 11, 12 and 13

Local Plan 2018
Policy 31 and Section 7

Built form

The routes and spaces between buildings are as important as the buildings themselves. Marmalade Lane, Cambridge. **Mole Architects**

Proposals must make good use of land and resources. Compact forms of development should be used, and must show how they support communities and services and promote walking and social connections. Buildings, routes and landscapes need to be designed in positive relationship to each other to create attractive, sustainable, coherent and safe places to live. Built form can have important implications for the practical delivery of energy efficient, sustainable homes – all of which need to be balanced with positive placemaking.

Built form is the three-dimensional pattern or arrangement of development blocks, streets, buildings and open spaces. It is the interrelationship between all these elements that creates an attractive and sustainable place to live, rather than simply their individual characteristics. Well-designed places create a positive sense of place and promote sustainability.

Compact forms of development must be used, and must be walkable, reducing emissions through active travel and contributing positively to wellbeing and placemaking. Achieving compactness through good design to raise development densities with efficient use of developed land, will be fundamental to delivering sustainable homes and neighbourhoods.

Consideration must also be given to:

- In terraced homes and apartments, servicing and storage of bins, cycles and car parking to ensure good street frontages;
- Sustainable buildings and places need to deliver, and perform well in their context. Proposals should be digitally modelled and tested at an early stage for daylight, sunlight, overheating, overshadowing and, where relevant, wind.

Aspects that should be considered include:

- Access to local public transport, services and facilities, helping support existing services to ensure sustainable development;
- Recognisable streets and other spaces with their edges defined by buildings, with natural surveillance promoting safety;
- Networks of routes, making it easy for anyone to find their way around;
- Memorable features or groupings of buildings should be used, with spaces, uses or activities that create a sense of place, promoting inclusion and cohesion.

Four Steps to Zero Carbon
Section 9

National Design Guide
Guidance B1, B2 and B3

Manual for Streets
Section 2

Local Plan 2018
Policy 57

Movement

Shared surface street
Woodside Square, Muswell Hill, London. **Pollard Thomas Edwards**

Being well connected is fundamental to delivering sustainable developments, promoting social cohesion, health and wellbeing, support for local services, and mixed sustainable transport modes. Proposals must promote walking, cycling and public transport and reduce car dependency, with a target maximum parking ratio of 0.5 spaces per home. Cycle parking must meet the Local Plan 2018. Local streets, public spaces and other routes must form convenient networks that are people, walking, and cycling focused. Their success must be assessed in how they contribute to the quality and character of the place, not only how well they function.

Patterns of movement play a significant role in whether a person becomes socially isolated. Physical access to friends and family, health services, community centres, shops, open spaces and other places and spaces enable individuals to build and maintain their social relationships. Poor transport links create barriers to social inclusion, whereas effective transport links benefit social cohesion, enabling individuals to play a more active role in their community. Promoting active transport choices, walking and cycling, is a key tool in both raising health and wellbeing and combating transport poverty associated with car dependant neighbourhoods. In designing new developments, we need to be aware of the elements that can create barriers to social inclusion and maximise opportunities for people to build social relationships and create healthy neighbourhoods.

A connected network of routes

Successful development depends upon a movement network that makes connections to destinations, places and communities, both within the site and beyond its boundaries. A well-designed movement network must define a clear pattern of streets and routes that:

- Is safe and accessible for all;
- Functions efficiently to get everyone around, takes account of the diverse needs of all its potential users and provides a genuine choice of sustainable transport modes;
- Limits the impacts of car use by prioritising and encouraging walking, cycling and public transport, mitigating impacts and identifying opportunities to improve air quality;
- Promotes activity and social interaction, contributing to health, wellbeing, accessibility and inclusion;
- Incorporates green infrastructure, including street trees, and helps to improve air quality and contribute to biodiversity.

Proposals should make use of Manual for Streets principles, which put pedestrians first. Local neighbourhood streets, with little vehicle movement, should be designed for low traffic speeds and prioritise space for pedestrians, play and nature rather than cars and service vehicles, and reflect their function as public open spaces and as a setting for the homes that surround them.

Reducing car parking, and the need for travel by private car

A good starting point for creating better streets is to reduce the number of cars that need to be stored on and around them.

Part of this can be done by reducing parking provision, and projects must aim for a ratio of around 0.5 parking spaces per home. Consideration must be given to parking allocation for larger family homes taking into account the views of the planning authority and the council's housing team.

Infrastructure must be provided with capacity for all spaces to have Electric Vehicle (EV) charging taking into consideration where the network operator confirms enough capacity is available. In tandem with reducing parking itself, developments must also take steps to reduce the need for a private car.

There are many methods that can be employed to reduce the need for people to travel by private car, thereby reducing the impact of large numbers of car journeys and excessive car storage. Options to consider must include mixed use developments; complementary uses within the surrounding area; walkable neighbourhoods; car club provision; travel plans for new developments; provision of Electric Vehicle charging points; provision of travel information packs for new residents and ensuring that schemes are served by high quality public transport and cycle networks to allow for a reduction in reliance on private cars. Housing should be located within 400m of high-quality public transport routes.

A green lane, Abode, Cambridge. **Proctor Matthews Architects**

Prioritising walking and cycling
Developments must maximise opportunities for people to meet their day-to-day needs using sustainable modes of transport, particularly walking and cycling. This must include:

- Designing footpaths and cycle paths along 'desire lines' to key destinations both in the vicinity of the area and in the wider community;
- Locating cycle parking for maximum convenience of access and ensuring cycle parking is safe and secure;
- Ensuring paths are safe and appropriately lit while minimising light pollution, with natural surveillance from adjacent buildings;
- Minimising disruption to pedestrian and cycle routes from the road network and car parking layout;
- Incorporating traffic calming measures; ensuring that there are good walking and cycling routes to and from key bus routes and that sufficient cycle parking is provided at bus stops.

Connecting to surrounding cycle networks
Part of the contextual analysis for proposals must include consideration of the location of existing pedestrian and cycle networks, so that these can provide a starting point for design. Where possible, existing networks should be integrated into new developments, with improvements and/or enhancements provided where required. This could include minor upgrading of junctions, signage and/or pavements and cycle paths; re-routing sections of cycle paths where necessary. Consideration should also be given to planned improvements to pedestrian and cycle networks in the vicinity of new developments and whether there is potential for schemes to link in with these. During the construction phase, appropriate measures should be implemented to ensure that construction works do not obstruct routes. In order for the use of sustainable modes of transport to become part of residents' normal routine, it is vital that these networks are in place and fully functional prior to first occupation.

Footpaths and cycle paths along 'desire lines', Mosaics, Oxford.
Pollard Thomas Edwards and Alison Brooks Architects

Developing an appropriate cycle parking strategy
Cycle parking provision must be integrated into the design of new developments from the outset, in order for high quality developments to be realised.

The visual impact of all forms of parking and storage must be mitigated through a comprehensive landscape strategy to ensure that buildings and parking respond to one another. Parking must not be seen to dominate the street scene. Examples include cycle shelters covered with sedum/green roofs and the use of rain gardens and tree planting in car parking areas.

When prioritising the relative demands of provision, cycle parking should be maximised, and car parking/storage should be reduced where possible. Providing enough convenient and secure cycle parking at people's homes and other locations, for both residents and visitors, is critical to increasing the use of cycles. In residential developments, designers must aim to make access to cycle storage secure and convenient – in principle as quick and easy to access as car parking. For houses where cycle parking might need to be in a rear garden, then access must be kept short, convenient and unobstructed.

Local Plan 2018 standards for residential cycle parking must be followed:

- Conveniently sited;
- Accessible and easy to use;
- Safe and secure;
- Covered;
- Fit for purpose;
- Well managed and maintained;
- Attractive.

The table below sets out the minimum targets for cycle parking that are to be delivered.

In addition to this, as E-bikes become increasingly common, access to a power sockets should be incorporated into secure stores.

A further consideration when designing space for cycle parking is the increasing use of cargo bikes and cycle trailers. Providing adequate space for such bikes, while important for all schemes, will be of particular importance when considering car free developments, as the use of such bikes can replace cars for many local trips, for example school/nursery drop offs and the weekly shop.

Use	Minimum standard
Residential dwellings	1 space per bedroom up to 3 bedroom dwellings Then 3 spaces for 4 bedroom dwellings, 4 spaces for 5 bedroom dwellings etc Visitor cycle parking next to main entrances to blocks of flats Visitor cycle parking in the form of a wall ring/bar or Sheffield stand at the front of individual houses must be provided where cycle parking provision is located in the back garden
Guesthouses and hotels	2 spaces for every 5 members of staff 2 spaces for every 10 bedrooms (minimum 2 spaces) Outside the City Centre, this should include space for cycle hire
Nursing homes	2 spaces for every 5 members of staff 1 visitor space for every 6 residents (minimum 2 spaces)
Retirement homes/sheltered housing	2 spaces for every 5 members of staff

Local Plan cycle parking table

Four Steps to Zero Carbon
Section 16

National Design Guide
Guidance M1, M2 and M3

Manual for Streets
Sections 4 and 5

Local Plan 2018
Appendix L

Use of bikes can replace cars for many local trips, Packington Neighbourhod, Islington, London. Pollard Thomas Edwards

Nature

Natural planting and SuDS drainage systems can be combined with high densities
New Garden Quarter, Chobham Farm Zone 4, Newham, London. Pollard Thomas Edwards

All developments must target a provision of a 20% biodiversity uplift on existing site conditions creating the improvement on site as far as possible. Where this is not possible, then designs should target off-site provision, but should aim for areas close by the development site. The biodiversity uplift should be demonstrated using the DEFRA biodiversity metric calculator.

Access to nature has an important role to play in promoting the health and wellbeing of residents, and all scales of development offer opportunities for the protection and enhancement of biodiversity. On smaller sites this can include the use of biodiverse roofs, the design of SuDS features to enhance biodiversity, the role of native planting schemes and the integration of nesting opportunities into the architectural design of buildings.

Developments must integrate new and existing natural features into a multifunctional network that supports quality of place and social use in tandem with biodiversity and water management, and addresses climate change mitigation and resilience. This includes natural and designed landscapes, high quality public open spaces, street trees and other trees, grass, planting and water. Open spaces should be well located on the network of routes, easy to access, with activities for all to enjoy, such as play, food production, recreation and sport. These encourage physical activity and promote health, wellbeing and social inclusion.

All scales of development present opportunities to create and improve the public realm. Open space and landscaped areas that respond to their context and the development as a whole are designed as an integral part of the scheme. These spaces can take many forms, including:

- Private amenity spaces – gardens, balconies, terraces and roof terraces/gardens;
- Biodiverse green roofs;
- Threshold landscaping and planted boundaries;
- Spaces that can become a focal point for communities, that encourage social interaction and recreation, for example well located shared spaces and play areas;
- Consideration should be given to ways in which residents can be engaged in the upkeep of communal green spaces, for example areas that are set aside for community gardening and food growing.

Larger sites should offer opportunities for biodiversity by creating networks of connected green spaces that offer safe cover for the movement of species as part of a coherent landscape strategy with a range of habitats. Consideration should also be given to the wider context of sites, where this network can have the potential to connect with existing habitats.
Access to a range of open spaces, both private and communal, is an important element of well-designed new developments that help to create healthy communities with a good quality of life.

Resident food growing area, New Ground Cohousing, Barnet.
Pollard Thomas Edwards

The distinction between the public and private realms must be clear, with careful consideration to boundary treatments and the role of materials and landscape features in delineating these spaces, for example the use of SuDS such as rills to mark the boundary between the public and private realm.

In flatted schemes, the aim must be to ensure that all flats have access to communal space that:

- Is overlooked by surrounding development;
- Is accessible and tenure blind to all residents of the block;
- Is designed to take advantage of direct sunlight;
- Has suitable management in place.

The importance of biodiversity and ecology in high quality new development
Proposed developments must result in a 20% biodiversity net gain. Each site will offer its own opportunities and challenges to achieving this. Early in the design process the following approaches must be included:

- Retaining existing natural features. Existing mature trees are best retained in managed common areas, and care should be taken to not unduly compromise the use of neighbouring private amenity;
- Maximising the benefit of green spaces and creating interconnected green networks, for example bringing together tree canopies, green roofs, vertical greening, pocket parks, green corridors;
- Ensuring that site appraisal includes a habitat survey that extends beyond the site boundaries and leads to mitigation and enhancement measures as part of the landscape and drainage strategies;
- Identifying ways in which biodiversity enhancement can be integrated into the design of schemes, including the role of landscape and drainage strategies, as well as consideration of measures integrated into building design.

Other approaches should include:

- Landscaped biodiverse SuDS features should be used wherever possible, rather than heavily engineered solutions;
- Identifying opportunities to engage with the community in installing nest boxes and monitoring the biodiversity enhancement of the scheme;
- Creating 'productive' landscapes for urban food production;
- Specifying appropriate levels of street and building lighting with careful consideration of the impact on wildlife, particularly protected species. Street lighting should be designed with a pedestrian perspective, with low height luminaires providing consistent unobtrusive lighting.

All sites must carry out an Extended Phase 1 Habitat Survey. This will help guide the design of the site, and will provide the baseline for the required 20% biodiversity uplift.

An avenue of trees becomes a new public route
The Avenue, Saffron Walden. **Pollard Thomas Edwards**

Four Steps to Zero Carbon
Section 15

National Design Guide
Guidance N1, N2 and N3

Local Plan 2018
Policies 31, 59

Including nature should add joy and identity. Playing in a pool of water.
City Park West, Chelmsford. **Pollard Thomas Edwards**

Public spaces

Public spaces can combine multiple activities and nature
New Garden Quarter, Chobham Farm Zone 4, Newham, London. Pollard Thomas Edwards

The quality of the spaces between buildings must be considered from the start of a project, and landscapes are as important as the buildings themselves, meeting biodiversity targets and promoting walking and cycling. Public spaces within developments must be well sited, accessible, safe, secure, tenure blind and inclusive areas that promote social interaction. They must be safely and conveniently accessed by the surrounding neighbourhood via the route network. Spaces should aim to bring people together, combining activities such as socialising, informal doorstep play, resting and movement. Developments must be safe and secure, meeting the SBD Gold Standard Certification.

Public spaces are streets, squares, and other spaces that are open to all. They are the setting for most movement. The design of a public space encompasses its siting and integration into the wider network of routes as well as its various elements. Public spaces can combine hard and soft landscaping, and should be sized to reflect their intended uses, but need not be large. In trafficked areas with multiple users such as cars, cyclists and pedestrians, areas for movement or parking need to be carefully considered to protect the primary function of the public space as a place of social interaction.

In many new developments, competing demands for the use of land mean that green and open space must be increasingly multifunctional and must include:

- Making a positive contribution to climate change by helping new developments adapt to and mitigate its impact, for example through promoting the greening of new developments;
- Improving water quality, flood mitigation and reduced flood risk through the use of SuDS;
- Promoting walking and cycling;
- Creating a sense of place and opportunities for greater appreciation of the landscape and cultural heritage;
- Providing well designed spaces that are safe;
- Good access to quality, private or privately shared amenity space, ensuring proper demarcation between private amenity space and communal or public realm.

Other approaches should include:

- Providing space for local food production;
- Providing space for outdoor education and children's play;
- Protection and enhancement of biodiversity;
- Increasing recreational opportunities and access to open space to promote healthy living;
- Creating well-located, high quality and attractive public spaces.

Places that provide a safe environment for all
A safe environment will encourage pedestrian movement, healthy active lifestyles, social connections and a sense of ownership at an individual and group level. In designing new developments, care must be taken to 'design out' features and areas that may contribute to crime or a fear of crime. A key tool in this is to have active frontages with frequent entrances, windows and habitable rooms at street level, while also allowing for privacy. When designing the provision of open spaces within developments consideration should be given to the following:

- Spaces are safer when they are easily accessible and well used. Spaces and places should be sited and integrated into the wider network of routes and bring together different users and supporting interaction;
- Natural surveillance - Is the space located in the sight-line of nearby houses, apartments and other areas of activity to ensure visibility? Could activity areas be clustered to provide greater informal surveillance within and between areas?;
- Lighting should be designed to reflect pedestrian use, with low height luminaires used and located to provide consistent but unobtrusive lighting where required;
- Risk assessment and mitigation at an early stage of the design process, so that security measures can be integrated into positive design features.

Employer's Requirements
SBD Gold Standard Certification required

National Design Guide
Guidance P1, P2 and P3

Homes can be incorporated over many other mixed uses to bring homes into the city. The Scene, Walthamstow, London. **Pollard Thomas Edwards**

Even quite small spaces, if well located, can become a well loved public space Deptford Market Yard, Lewisham, London. **Pollard Thomas Edwards**

Uses

Developments and shared spaces should look to bring people together. New Ground Cohousing, Barnet, London. **Pollard Thomas Edwards**

Developments must be socially inclusive, diverse, and cohesive, with a mix of homes reflecting the needs of people of different ages and abilities and the council's housing requirements. Proposals should aim to reinforce existing neighbourhoods by enhancing local transport, facilities, and community services, and maximising their potential use. The mix of homes, with a compact form of development, should aim to reinforce existing places by enhancing local transport, facilities and community services, and maximising their potential use.

A mix of home tenures, types and sizes must reflect the council's preferred housing mix of home sizes
Where different tenures are provided, these must be well integrated and designed to the same high quality to create tenure blind homes and spaces, where no tenure is disadvantaged. Design must avoid layouts or features that could create actual or perceived barriers, or contribute to segregation, both within the development and with its surroundings.

Developments, particularly larger ones, should look for opportunities to provide a diverse mix of homes. By bringing together homes from apartments to small and large family houses, we aim to enable inclusive, economically and socially sustainable, mixed-income, and multi-generational living. This includes families, extended families, older people, young people and students, and people with physical disabilities or mental health needs.

The mix of homes and tenures, within a compact form of development, should aim to reinforce existing places by enhancing local transport, facilities and community services, and maximising their potential use.

National Design Guide
Guidance U1, U2 and U3

HAPPI Principles

Local Plan 2018
Policy 50 and 51

A mix of uses
Using local resources such as shops, schools, nurseries, community facilities, parks, other open spaces, health, and religious or cultural facilities as destinations in layouts. This promotes social interaction and integration and help combat loneliness.

Where new non-residential uses are proposed, these should help support and enhance walkable provision for the local community, promote cohesion and not undermine existing services. Multi-purpose, flexible space should be considered in these circumstances.

Socially inclusive
Where different tenures are provided, they must be well-integrated and designed to the same high quality to create tenure neutral homes and spaces, where no tenure is disadvantaged.

Avoid layouts or features that could create actual or perceived barriers, or contribute to segregation, both within the development and its surroundings.

Combat isolation by exploring ways to bring older people into sites in central areas, where they can benefit from local services. Homes and developments for older people should follow HAPPI principles, which take into account a range of considerations when designing homes. Many of these are sound principles of good design, the benefits of which will be felt across all age groups.

Other housing models
Cohousing projects are a powerful tool in building sustainable neighbourhoods, with a strong focus on social interaction, sharing facilities and collective stewardship. Cohousing projects are developed by and with their residents, meaning sites need to be identified early at the feasibility stage. "Pocket" homes may also be appropriate in some locations – but these homes must be accompanied by enhanced provision of shared space and amenities.

Shared common room, Marmalade Lane, Cambridge. **Mole Architects**

Homes and buildings

Homes should be a joy to use, inside and out.
Knights Park, Eddington, Cambridge. **Pollard Thomas Edwards and Alison Brooks Architects**

All our homes must meet the Nationally Described Space Standards and must be accessible to Part M4 Category 2 or above. The internal environments and associated external spaces that they provide will support the health and wellbeing of their residents and all who experience them.

Functional design
Good design promotes quality of life. Buildings need to be a joy to use – providing comfort, safety, security, amenity, privacy, accessibility, and adaptability. They will be efficient and cost effective to run. All designs must address fuel poverty – for example factoring in costs of water heating as well as space heating. As Passivhaus homes, they must have good sunlight, daylight and ventilation, avoid overheating, minimise sound pollution and have good air quality, while providing comfort and personal control for their users.

Space
Space at home has a significant impact on quality of life. As noted by the RIBA, lack of space can compromise basic lifestyle needs that people take for granted, for example having enough space to store possessions, play, exercise and entertain friends. It can also have more profound knock-on effects on health, educational attainment, family relationships and even social cohesion. The importance of the functional design of space cannot therefore be understated.

Homes and communal areas must meet Nationally Described Space Standards for room sizes and follow the ER's on floor-to-ceiling heights, internal and external storage. All homes must be accessible, and must meet the access standards for Part M4 Category 2 or above, meeting planning policy.

Homes should frame the spaces around them Goldsmith Street, Norwich. **Mikhail Riches**

'Smart' homes
New sustainable homes should look to incorporate new technologies to benefit their residents. This includes supporting home-working, reducing bills and energy use by energy monitoring, through to helping an elderly relative to live independently in their own home for longer. A 'smart' or 'connected' home is best thought of as a spectrum of electrical and digital applications, combined with a well-designed, flexible and adaptable home.

External spaces and services coordination
Every home must have good access to a quality, private or privately shared, amenity space ensuring proper demarcation between private amenity space and communal or public realm.

All private and shared external spaces should encourage positive uses, feel "owned", valued, and function well. Amenity spaces should have a reasonable degree of privacy, taking care to think about how they relate to the wider context, and how they are likely to be used.

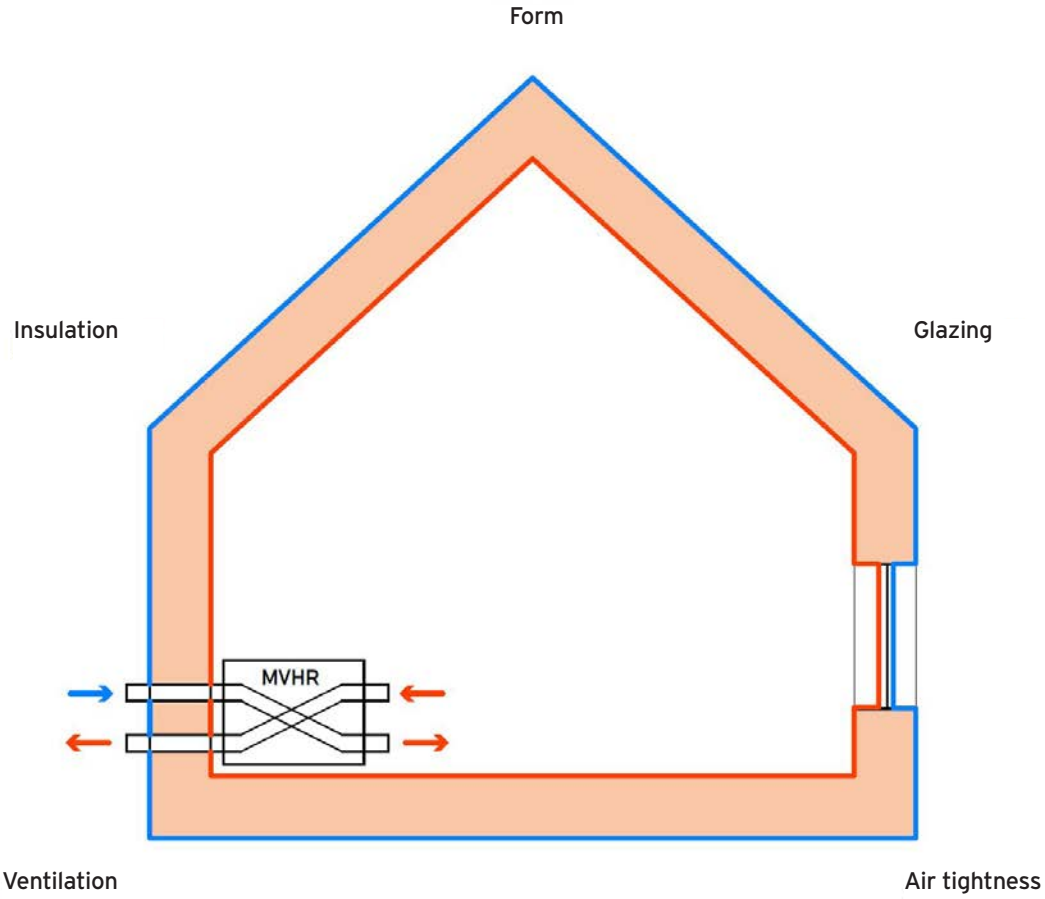
Homes must relate positively to the spaces around them, contributing to social interaction and inclusion. Details of operation, servicing, waste collection and storage should be resolved so that they are unobtrusive and well-integrated into their neighbourhoods.

Employer's Requirements
Floor to Ceiling Heights
External Amenity
Passivhaus certification

National Design Guide
Guidance H1, H2 and H3

Manual for Streets
Section 5

Local Plan 2018
Policy 50 and 28



The five principles of Passivhaus. **Pollard Thomas Edwards**

Spaces around buildings should add to their character, feel owned and valued
Abode, Cambridge. **Proctor Matthews Architects**

Resources

Developments should aim to retain existing trees and planting, and value them as an asset. Accordia, Cambridge. **Maccreanor Lavington**

We need well-designed, sustainable places and buildings that conserve natural resources including land, water, energy and materials. Developments must be efficient and resilient to climate change, designing out performance issues and performance gaps meeting sustainability targets.

Developments must make good use of resources, hierarchy, and be fit for purpose. They must be robust and adaptable to reduce the need for future redevelopment and unnecessary waste. The design, construction and management/use of the homes should make use of modern technologies including Building Information Management (BIM) digital modelling, off-site construction and energy use monitoring.

All scales of development should take opportunities to contribute to the achievement of wider resource conservation goals and local social initiatives, for example Cambridge Sustainable Food.

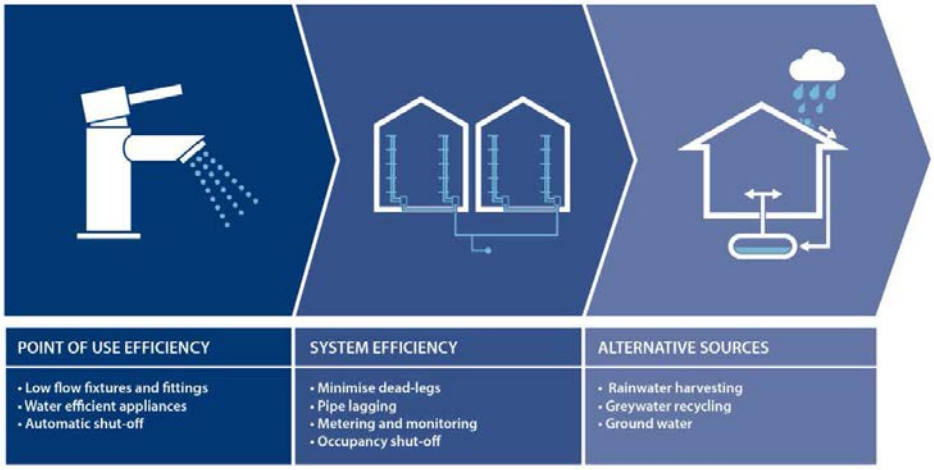
Reducing water consumption
Cambridge is an area of water stress and as such it is important that all new developments include measures to reduce potable water consumption.

As well as helping to conserve water resources, reduction of water consumption will help our residents reduce their water bills, an approach of increasing importance for those residents already facing fuel poverty. Integrating measures into new homes is far more cost effective than retrofitting measures at a later date.

The starting point must be to reduce demand through fittings and all developments must achieve a minimum of 90l/ppd without need for recycling. This means designs must follow the guidelines in the table below.

It is also important that water efficiency beyond homes is considered. Irrigation of communal landscaping and private gardens must also be taken into consideration, with priority given to the use of rainwater harvesting for irrigation. For homes with private gardens, careful consideration should be given to the location of down pipes so that each property can utilise water butts. Grey water harvesting must be avoided unless targeting Net Zero Carbon.

	Bathroom to have	
	Shower only	Small bath
1 bed flat	✔	
2 bed flat	To be reviewed with housing on a site by site basis	
2 bed house		✔
3 bed house		✔



The water hierarchy **GLA**

Resource efficiency at all development stages
To ensure resource efficiency is effectively delivered, it must be considered early, following the energy hierarchy, meeting sustainability targets. It must then be reviewed at each subsequent stage of the design and development process in a logical way – changing focus as more detailed technical aspects are being developed.

Concept design: Location, understanding the context and placemaking
Early decisions about the scope of a site, how a design is sited and how it relates to its context are likely to be fundamental to the environmental footprint of a development; the resources it will consume in its delivery, and then subsequently over its lifetime.

A compact and walkable neighbourhood, with access to a mix of uses and facilities, reduces demand for energy and supports health and wellbeing. It uses land efficiently so helps adaptation by increasing the ability for CO2 absorption, sustaining natural ecosystems, minimising flood risk and the potential impact of flooding, and reducing overheating and air pollution.

Neighbourhoods, links, green spaces and facilities should all be designed to promote and encourage healthy sustainable lifestyles. Emerging proposals should be based on the analysis of the site and surrounding context and be laid out to retain trees and other natural features, where possible. Orientation and sun paths should be understood to allow light and views to be optimised and shading principles to be incorporated early.

Buildings should aim to keep simple lines to the façades, with efficient building envelopes. Anstey Way, Trumpington, Cambridge. **Rock Townsend**

Design development
The massing and design of the blocks can have a significant impact on the total inherent space heating demand of the building. This can be measured as its "form factor" – the ratio of external surface area to floor area. A lower form factor means a denser building form, reducing heat losses per sqm of floor area.

Design teams must assess and optimise the "form factor" of proposals, balanced with the site's constraints and design requirements. Generally, buildings should aim to keep simple lines to the façades, prioritise projecting balconies over inset, joining homes at a common point to avoid corners, and decrease roof areas. For family houses, joining homes together to create terraces can be a key tool in reducing form factor.

Proposals must be tested for their overshadowing, overheating, and impact on daylight and sunlight. This must be used to help inform the ongoing design development of the layouts and optimise elevation designs and openings. Layouts must prioritise providing dual aspect homes and avoid single aspect where possible.

Likely construction techniques should be discussed at this stage. Modern Methods of Construction (MMC) should be used where possible to help reduce construction waste and raise quality. Exact construction methods and build-ups are typically unknown at this point. To help deliverability, we would recommend that external wall thickness should typically be set to at least 500mm for all planning stage work.

Detailed design and delivery
Design specification must be assessed and the sustainable design commitments, and construction on site must be monitored. To help ensure sustainability objectives are delivered, these should include:

- Implementation of Building Information Modelling (BIM) to ensure collaboration across all disciplines to further maximise resource efficiency;
- Responsible sourcing of materials, with consideration given to materials with low embodied energy, local sourcing and materials made from renewable or waste resources;
- Implementation of the design for deconstruction principle, to enable resources to be reused at the end of a buildings lifetime.

- Encourage regular client monitoring with site visits, as this is critical to delivering site quality, for example reviewing fitting of insulation to avoid cold bridging and the installation of HVAC equipment;
- Careful monitoring of construction processes to ensure goals for waste minimisation are achieved, for example through the use of the BRE's SMARTWaste initiative or other similar approaches.

Closing the performance gap and post occupancy testing

The performance gap, that between the anticipated design performance and actual built performance, must be closed. Designs must follow the principles of the BSRIA Soft Landings Framework throughout the design, construction and post occupancy stages of the development identifying and resolving performance gap risks between the anticipated design performance and actual built performance.

Design teams should note that the council will undertake Post Occupancy Evaluation (POE) by monitoring progress annually over the first 5 years. On previous schemes where there has been POE, the council will share any lessons.

In addition, post occupancy monitoring and evaluation is important so that we can learn from what has worked well, and what has not worked so well. When designing new developments, lessons must be learnt from previous projects for key performance criteria, such as energy use, carbon reduction, water use, indoor air quality, internal temperatures and performance of renewable/low carbon energy.

A further important element that will help determine the success of the specification is feedback from residents using resident satisfaction surveys. These should be specifically tailored to understand residents' experience of living in new homes; for example, how they rate the quality and performance of their new homes and how they view the quality of the context within which the development sits. This is information that is rarely collected from residents in new developments but is vital in furthering our understanding of the role of the built environment in improving people's health and wellbeing.

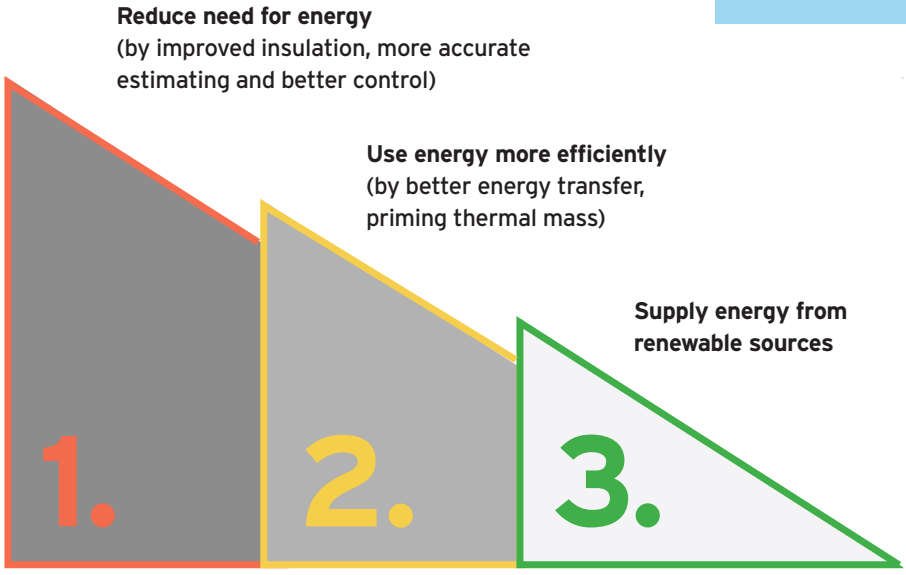
Four Steps to Zero Carbon
Section 8, 9, 10, 12 and 14

BSRIA's Soft Landings Framework

National Design Guide
Guidance R1, R2 and R3

HAPPI Principles

Local Plan 2018
Policy 28 and 31



The energy hierarchy

Lifespan

Thoughtful stewardship should be visible and celebrated Goldsmith Street, Norwich. **Mikhail Riches**

Our developments must convey a sense of ownership, with well-designed places and thoughtful stewardship sustaining their beauty over the long term. Developments must be built to last, with maintenance, management and running costs considered at the outset – including addressing fuel poverty. Landscape and building designs must show how they incorporate long-term resilience to future climate change. Our developments must follow the principles of BSRIA's Soft Landings Framework.

Developments will help to generate "pride of place" and be designed to maintain that positive identity with a long-term view. This is to be demonstrated with high quality, timeless, contemporary design, with attention paid to finish and detailing during construction. The use of high quality, durable materials and careful detailing is essential, not only to help reduce long term maintenance costs, but to promote "pride of place" amongst residents, who will ensure that their homes are looked after in the future.

Taking a long term view must include:

- Collaborative working between all disciplines at the heart of all projects;
- All developments require care and must be designed with a view to long term management, so that they are cost-effective to run and maintain. Without compromising sustainable objectives, maintenance issues must be 'designed out' as far as practicable;
- Where available, maintenance/estates and facilities teams must be involved in the design process so that they are familiar with systems being proposed, and training can be provided prior to installation of unfamiliar systems so that they can be effectively operated and maintained post construction.

Year-long post occupancy testing, Virido, Clay Farm, Cambridge. **Pollard Thomas Edwards**

Homes where residents are supported and can understand how to run their home cost effectively and efficiently

Building sustainable homes must help the council address fuel poverty. Affordability for residents to heat and power their homes is a priority for the council.

In order for residents to fully realise the benefits of living in sustainable, energy efficient new homes, it is important that they understand how the systems in their new home work, so that they can operate them effectively. Evidence shows that where systems, including controls, are overly complex, residents often feel that they have little control over the environment in which they live. At worst, this can lead to higher energy bills for residents and a poor internal living environment with subsequent health impacts.

The following principles must be followed:

- User friendly design of building systems/ controls, for example heating and ventilation controls, to ensure that they are easy to understand and work effectively;
- Support in the form of schemes such as BSRIA's Soft Landings Framework should be utilised to ensure that residents have access to professional post occupancy after-care and support.

The following principles should be followed:

- Consideration given to new ways of delivering simple home user guides, with consideration given to the role of 'smart' or 'connected' homes in providing guidance. Homeowners should not just be given paper manuals, as these often do not get used;
- Provision of smart meters to make energy and water consumption highly visible. This should also extend to renewable energy systems where provided, so residents can see how much energy they are generating. Remote monitoring and energy management can also help this.

Resilience

Our climate is changing and as a result it is important that all developments give consideration to climate risks and design-in measures to enable new homes and their residents to adapt. Climate risks are, a general warming, but also increased risk of extreme weather events such as flood, drought and extreme heat waves.

The key principle should be to ensure that adaptability is designed into schemes, so that residents do not have to rely on complex technologies that are expensive to run.

It is also important to look to measures beyond new homes themselves, seeking opportunities within the landscape setting of developments for adaptation.

This will often require a multidisciplinary approach to design in order to maximise benefits, recognising the role of all members of the design team in responding to climate change.

Adaptation measures can be implemented at a variety of scales, and consideration should be given to the following measures:

- The use of SuDS and flood resilient architecture;
- Drought resistant planting;
- Greening the environment to provide evaporative cooling and to help shade buildings;
- Implementing resilient architecture and construction to minimise impacts.

Overheating
In the context of global temperatures rising due to climate change, and predictions of further increase in the upcoming years, managing overheating in homes is essential.

When considering adaptation strategies, it will be important to ensure that they are appropriate for the context in which the development sits and that they do not conflict with other strategies. All developments must follow the cooling hierarchy when considering design interventions to avoid overheating and undertake a TM59 assessment using climate data to 2050.

For example, in areas of poor air quality, careful consideration will need to be given to ventilation strategies to ensure that buildings do not overheat and that good levels of indoor air quality and thermal comfort are maintained. In such circumstances, the importance of designing out issues such as overheating, for example through the use of building overhangs or external shading, becomes even more important.

The residential properties we are building now will be in use in 2050 and beyond. It is therefore essential that dwellings designed today will be able to avoid overheating not only when they are completed under today's standards, but in 30 years' time, when temperatures have risen.

Fire
The council's Employer's Requirements sets higher standards than for Building Regulations for fire on the use of combustible materials, compartmentation/ sprinklers, in the provision for a place of 'relative safety' for persons of limited mobility.

All designs to be reviewed and approved by the council's fire officer before planning submission.

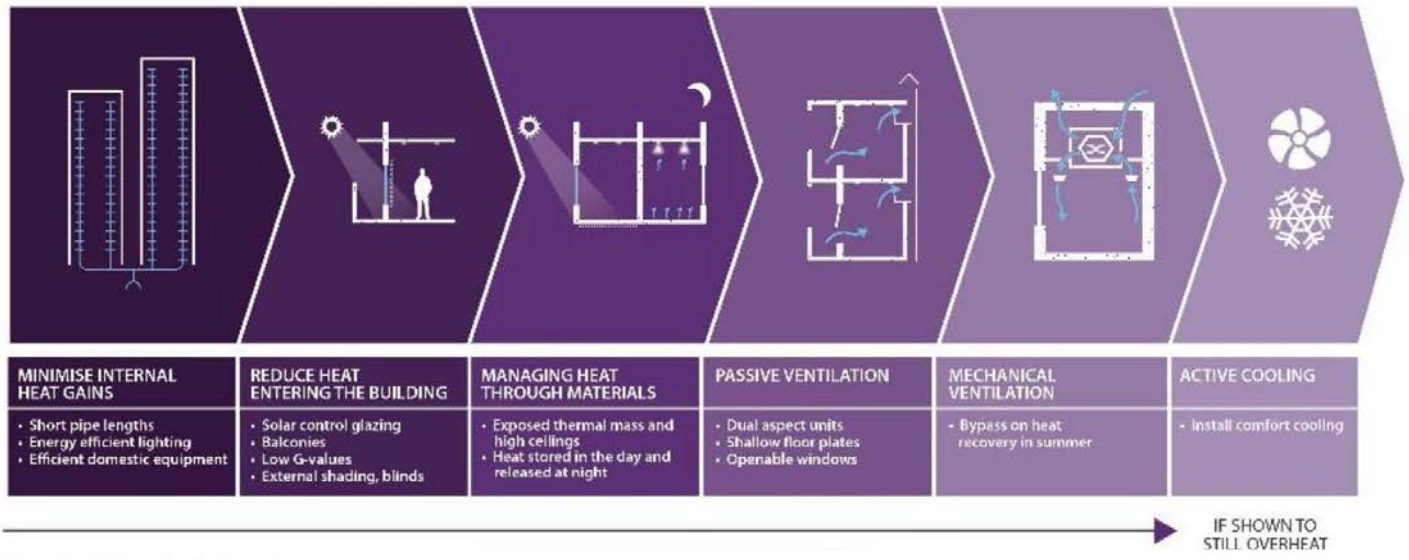
Employer's Requirements
Sound insulation
Lifetime costs
Asset management
Technical reviews

Four Steps to Zero Carbon
Section 13 and 14

BSRIA's Soft Landings Framework

National Design Guide
Guidance L1, L2 and L3

Local Plan 2018
Policy 31 and 28



The cooling hierarchy **GLA**

03

Appendix

This guide is intended as an illustrated summary of the principles of high quality sustainable design and delivery that we expect development teams to adopt when producing our housing projects.

The following appendices have been included to give some key reference policy documents referred to in the text, which can be referred to for further technical and in-depth design guidance on the topics covered in this summary.

Useful reference documents

2018 Cambridge Local Plan www.cambridge.gov.uk/media/6890/local-plan-2018.pdf
C1 Sustainable Design & Construction SPD Draft for consultation
C4 Cambridge Walking and Cycling Strategy
C15 Sustainable Design & Construction SPD
C17 Car Park & Cycle Standards (2004)

BSRIA Soft Landings Framework
www.bsria.com/uk/consultancy/project-improvement/soft-landings/

Draft Biodiversity Supplementary Planning Document, Greater Cambridge Shared Planning, 2021
https://www.greatercambridgeplanning.org/media/2316/gcsp-biodiversity-planning-doc.pdf

Four Steps to Zero Carbon, Buro Happold, 2021

HAPPI Principles, Housing Learning and Improvement Network
www.housinglin.org.uk/Topics/browse/ Design-building/HAPPI

Manual for Streets Department for Transport and Department for Communities and Local Government, 2007
www.gov.uk/government/publications/manual-for-streets

Manual for Streets 2 Department of Transport, 2010
www.gov.uk/government/publications/manualforstreets-2

MHCLG, Nationally Described Space Standard
www.gov.uk/government/publications/technical-housing-standards-nationally-described-space-standard

National Design Guide Ministry of Housing, Communities and Local Government, 2021
www.gov.uk/government/publications/national-design-guide

RIBA Sustainable Outcomes Guide RIBA, 2019
www.architecture.com/-/media/GatherContent/Test-resources-page/Additional-Documents/RIBASustainableOutcomesGuide2019pdf.pdf

The Greater Cambridge Sustainable Design and Construction Supplementary Planning Document
Greater Cambridge Shared Planning, 2020
https://www.cambridge.gov.uk/media/8157/greater-cambridge-sustainable-design-and-construction-spd.pdf

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Revisions

Rev	Date	Notes