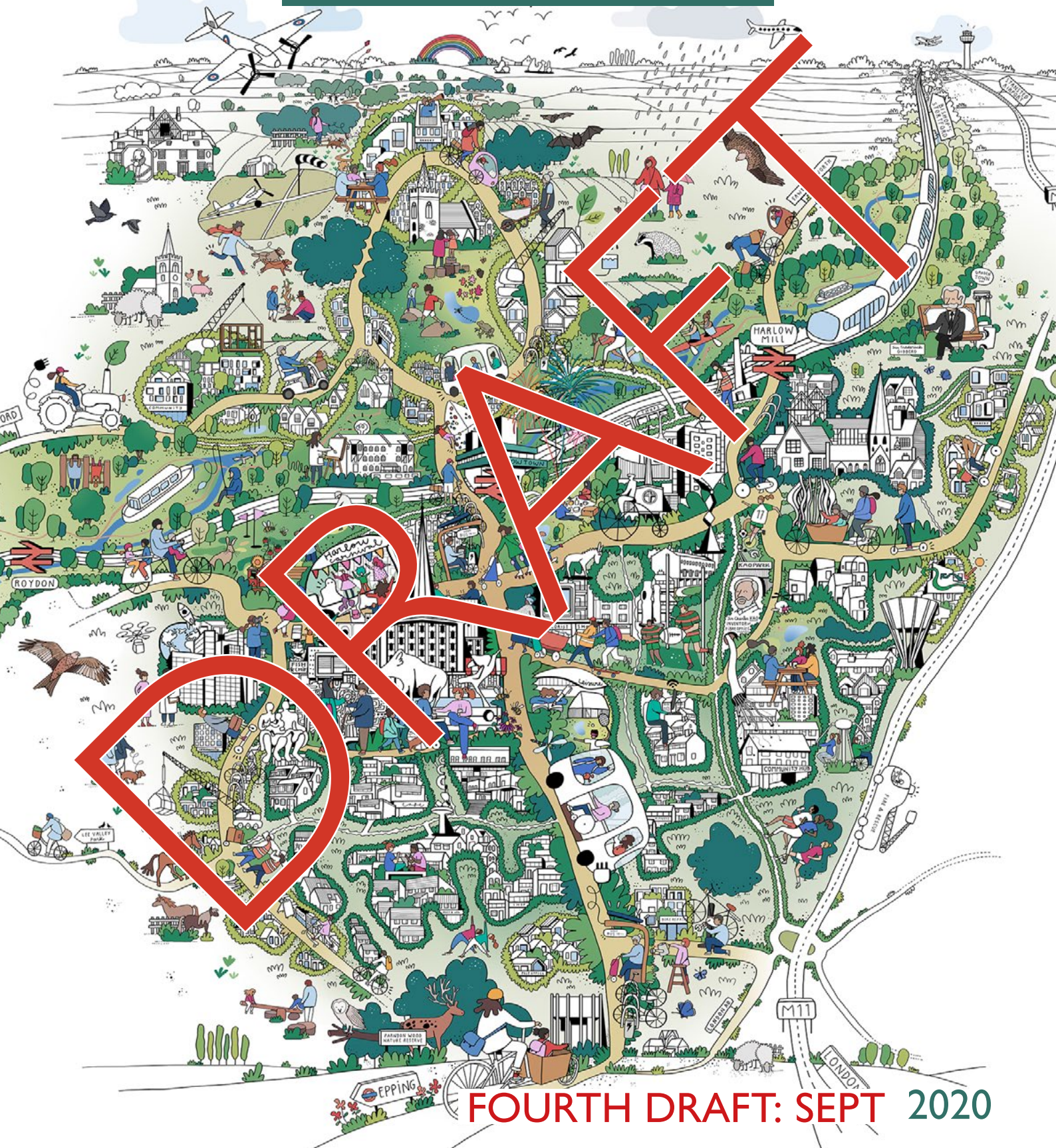
HGGT

HARLOW & GILSTON GARDEN TOWN

SUSTAINABILITY GUIDANCE & CHECKLIST

Interactive PDF: best viewed on computer screen



DRAFT

FOURTH DRAFT: SEPT 2020

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The majority of the illustrations in this guidance have been undertaken by Narea Bermejo Olaizola

Essex County Council · Hertfordshire · Harlow Council · Epping Forest District Council · East Herts Council

HGGT WEBSITE

The pioneering New Town of Gibberd and Kao will grow into a Garden Town of enterprise, health and sculpture at the heart of the UK Innovation Corridor. Harlow and Gilston will be a joyful place to live with sociable streets and green spaces; high quality homes connected to fibre optic broadband; local centres accessible by walking and cycling; and innovative, affordable public transport.

It will set the agenda for sustainable living. It will be adaptable, healthy, sustainable and innovative.

HARLOW AND GILSTON GARDEN TOWN

Harlow and Gilston Garden Town (HGGT) will comprise new and existing communities in and around Harlow. Set in attractive countryside, with transformative investment in transport and community infrastructure, new neighbourhoods to the east, west and south and new villages to the north will be established.

East Herts, Epping Forest and Harlow District Councils are working together with Hertfordshire and Essex County Councils to ensure plans for the Garden Town support sustainable living and a healthy economy; provide a good quality of life for existing and future residents; and respond to local landscape and character.

The **HGGT Vision** document sets out the vision for the Garden Town and the principles which will inform its growth and management. It will help support the delivery of the locally-led Garden Town, furthering the joint-work that is supported by Government.

SUSTAINABLE LIVING

Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. High quality sustainable developments require adopting a holistic approach to environmental, social and economic sustainability.
UN Sustainability Development Goals

The Garden Town seeks to set the agenda for sustainable living through ensuring growth that will be being net carbon neutral by 2030, and building strong and integrated communities across new and existing places, with social equity.

POST COVID-19 PANDEMIC RECOVERY

This Guidance was developed during the devastatingly global pandemic of the corona virus. Specifically, the pandemic highlighted the stark environmental, social, and economic inequalities of many parts of society in it's wake and an economic set-back that will be felt for years to come.

As a result, high-quality design is needed now more than ever to ensure that existing and new residents of the Harlow & Gilston Garden Town can recover from this pandemic in a sustainable manner. Specifically, unemployment will be high, as is the situation around the country, and there will be additional need to increase job opportunities through the design, construction, and long-term maintenance of infrastructure across the Garden Town. All stakeholders are therefore expected to work collaboratively to ensure that the Garden Town is a joyful and sustainable place to live, work, and play.

Introduction

INTRODUCTION

1 | THE CLIMATE EMERGENCY

The UK Government has declared a Climate Emergency, with all five HGGT Partner Authorities also declaring a Climate Emergency / Action.

This Sustainability Guidance supports the highest commitment across the Garden Town authorities, which is to become Carbon-Neutral by 2030.

The global climate is changing, with greenhouse gas emissions from human activity the dominant cause. The global increase in temperature of 0.85°C since 1880 is mirrored in the UK climate, with higher average temperatures and evidence of more extreme weather events.

Climate change adaptation is a term that describes measures that can be put into place to help us adapt the changes in our climate that are now inevitable.

There is a strong national and local policy context for planning environmentally, socially, and economically sustainable places and developments.

2 | PURPOSE OF THIS GUIDANCE

The Garden Town will set the agenda for Sustainable living, where it is easy for residents to adopt sustainable lifestyles. This means the choices offered across all aspects of living, work, and play are sustainable.

The three district authorities have a combined carbon emission contribution of 2,048 CO2 (kt) across all industries (2017 data). Planning for significant growth in the Garden Town, new developments need to have in place the foundations to enable exemplar placemaking and long term sustainability.

This document provides practical and technical guidance on how relevant Sustainability indicators and policies (environmental, social, and economic) in the HGGT Vision and partner authorities Plans will be applied to new major residential and non-residential developments in the Garden Town.

The purpose of this guidance is to help applicants meet the Garden Town goals of becoming net zero-carbon by 2030, and, building strong and integrated communities across new and existing places.

3 | WHO USES THIS GUIDANCE

Applicants + Agents:

The document is to be used by developers, design teams, consultants and contractors in shaping development proposals, This will guide the design of proposals and ensure coordinated and integrated consideration of sustainability principles and targets at an early stage.

Local Authority Officers and decision-makers:

This document will be endorsed to have material planning weight and the Checklist will help guide the assessment of planning applications for developments coming forward within the Garden Town. It will inform pre-application discussions and assist decision-makers in sustainability matters.

The HGGT Quality Review Panel (QRP):

This Checklist will be utilised for QRP reviews to help form the basis of Sustainability and Garden Town discussions. The QRP panel members are independent experts and applicants are advised to be in a position to discuss issues on all categories raised in this guidance.

4 | WHEN TO USE GUIDANCE

Masterplanning

This guide should be used at as early a stage as possible in the design process in order to reduce costly and time-intensive re-design at later stages.

Pre-Application

The Sustainability Checklist and relevant certification should accompany pre-application discussions to ensure all applications have considered and incorporated sustainability measures from the outset of their design.

Planning Application

A Sustainability Strategy incorporating the Checklist, with relevant certification, is to be submitted alongside planning applications.

Post-Planning

Relevant pre-occupation conditions (Appendix 7) will be discharged and planning obligations and monitoring will be coordinated to ensure that sustainable measures are in place through to delivery and beyond. Tools such as Post-Occupancy Evaluation for ongoing monitoring will be expected relating to key indicators.

HOW TO USE THIS GUIDE

5 | HOW TO USE GUIDANCE

High quality and sustainable development requires environmental, social and economic sustainability to be holistically considered. This document is split into two sections, with **sustainability categories interdependent on each other**, and co-benefits indicated throughout. The **two sections** in exemplar placeshaping:

1. The Environmental Section
2. The Socio-Economic Section

These Sections consists of **Categories**, noting:

1. **Objectives & Requirements**
2. **Key Local Policy & Guidance**
3. **Case studies**: with links to external sources
4. **Checklist**: to be completed and submitted.

6 | TO BE SUBMITTED

1. Collated Sustainability Checklist
2. Sustainability Statement

A Sustainability Statement or Strategy will be required; this guidance and checklist will assist applicants to provide the information for this, in order to meet the Garden Town principles and local policies.

7 | APPLICATION OF GUIDANCE

The guidance is also applicable to:

- Strategic Masterplan / Village Masterplan areas
- All major residential developments (≥ 10no.)
- Non-domestic major developments and infrastructure proposals (as applicable)
- Change of Use resulting in a major development
- Council-led housing within the Garden Town

8 | THE QUALITY CHECKLIST

The **Checklists** visually indicate the quality of development in line with the Garden Towns' standards - these work together across categories and will therefore be assessed interdependently to ensure a holistic approach overall.

Minimum Requirements	Net Zero-Carbon by 2050	Net Zero-Carbon by **2030**
These are policy- compliant / Building Regulations compliant, but do not meet Climate Declaration targets	These targets meet ultimate goal, but 20 years slower	These targets meet our goal and Climate Declarations

9 | RELATIONSHIP TO THE LOCAL PLANS

This guidance should be read in conjunction with the policies found in the Epping Forest DC (2017), East Herts DC (adopted 2018), and Harlow DC (2018) Local Plans and this document will be endorsed to have material planning weight when determining applications.

This Garden Town sustainability guidance will need to be considered as part of the wider policy context but is expected to compliment to the policies and SPD by providing a practical tool for enhancing the sustainability of development in the Garden Town.

10 | RELATIONSHIP TO VISION

Although this document is presented in a stand alone format, it should be read in conjunction with the Harlow and Gilston Garden Town Vision, and Design Guide. The Sustainability Guidance takes the principles and objectives of the Vision as its starting point and provides guidance and checklists to help deliver these principles, and sustainability goals.

The HGGT Design Guide sets out Design Quality Questions which applicants are expected to follow. The information in this document aim to build on these and provide further guidance and detail where appropriate.

The Sustainability Guidance and Checklist will help inform a collaborative masterplanning and application process.

11 | PARTNERSHIP WORKING

In addition to cross-boundary working as part of the Councils' Duty to Cooperate, the Councils are committed to working with relevant organisations, service providers and community groups to ensure proposals are developed collaboratively and with thorough consideration of local priorities.

12 | REVIEW & MONITOR

This document will be reviewed regularly (maximum every three years) to ensure that it remains fit for purpose, and updated as necessary.

13 | INCENTIVES FOR SUSTAINABILITY

This section highlights how high-quality sustainable development de-risks the Planning, Construction, and Commercial aspects of development.

By 2030 all new buildings will need to operate at Net Zero (i.e. annual net zero carbon emissions), which means that by 2025 100% of all new buildings must be designed to Net Zero-Carbon.

In the Garden Town, 16,000 new homes are expected over the next plan period, with more to follow. If the standards highlighted in this document is not met when homes are first constructed, they will require retrofit before 2050 just to keep up with changing legislation; which is likely to be five times more expensive than building them to be zero-carbon in the first place.

Current statistics indicate that net zero homes can be achieved at equal cost to traditional build costs depending on economies of scale, or, for an additional capital cost of 5-7%. This added capital cost is also likely to decrease over time due to the decarbonisation of our electricity grid, and the reducing costs of technology. Furthermore, long-term operation costs of new homes are vastly reduced due to the lower energy demand from homes, eliminating challenges such as fuel poverty. *(Currie & Brown, 'Cost of Reduction in New Buildings')*

In a post covid society, more people are working from home, and look to live more sustainable lifestyles, making sustainable communities more attractive to homeowners; furthermore, homes meeting higher sustainability standards have been shown to attract a premium as consumers choose to purchase their homes from sustainable-conscious developers. *(CCC: Net Zero, 2019)*

14 | PLANNING AND SUCCESS

Using the Guidance and Checklist to demonstrate sustainability ambitions will lead to a smoother planning process and faster assessment time.

Exemplar schemes will be hosted on the HGGT website and shared as case studies in a bid to promote the most ambitious projects.

The Garden Town will also actively work with applicants to put their schemes forward for Local and National awards and partnership opportunities.

SUSTAINABILITY GUIDANCE APPLICATION AREA

The Garden Town comprises development sites both within the Harlow administrative area and within East Hertfordshire District and Epping Forest District. This include:

Gilston Area:

- Located in East Hertfordshire District
- Across 7 villages,
- 10,000 homes in total
- 3,000 built by 2033, a further
- 7,000 to follow post-2033

East of Harlow:

- Located in Harlow and Epping Forest Districts
- 3,350 new homes in total
- 2,600 within Harlow District
- 750 within Epping Forest District

Water Lane Area:

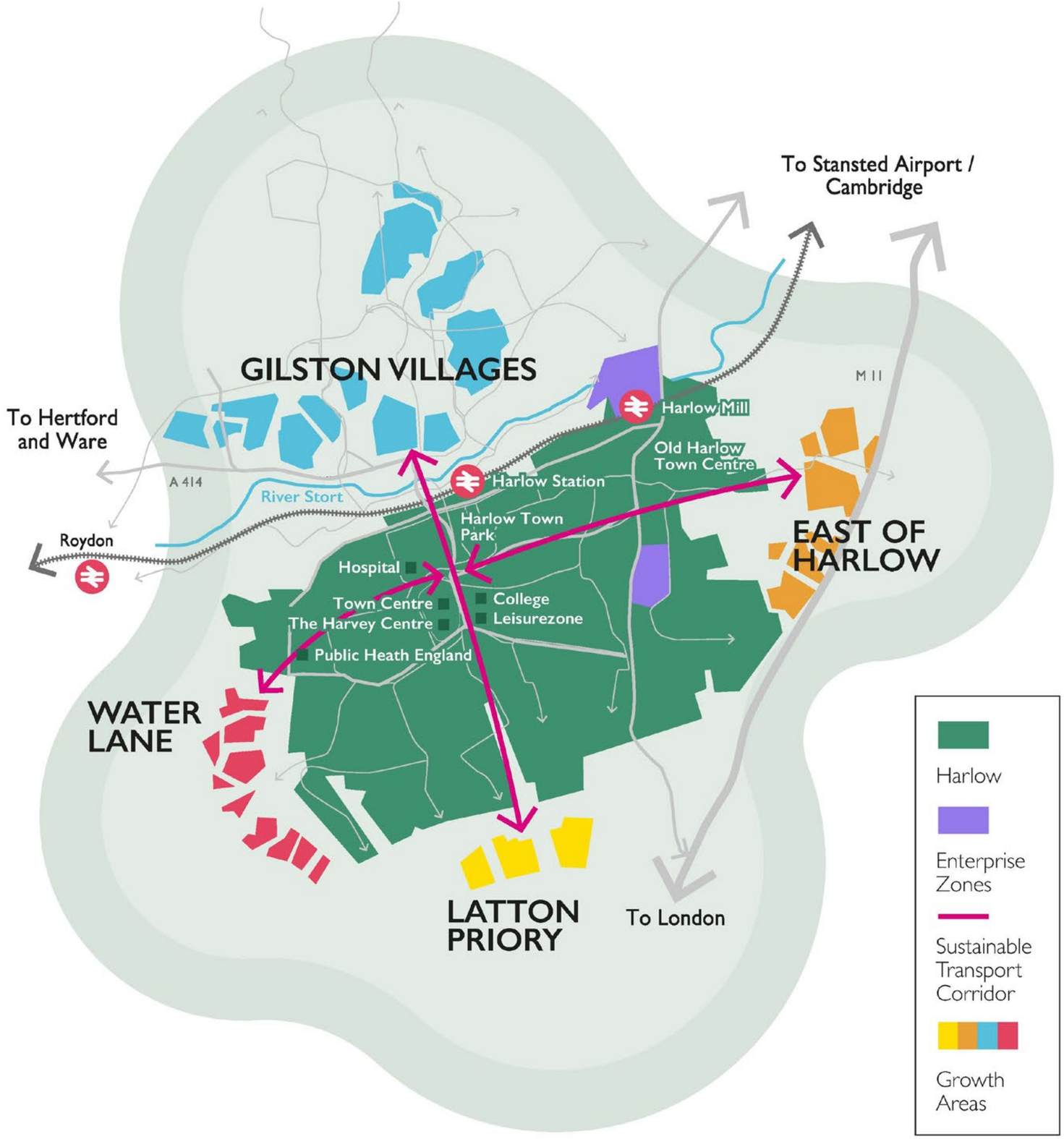
- Located in Epping Forest District
- 2,100 units in total
- Water Lane Area is broken down into two separate areas known as: West of Katherine's and West Sumners

Latton Priory:

- Located in Epping Forest District
- 1,050 units in total

Draft Harlow Local Plan:

A further 21 sites, which together total 1,147 dwellings, are allocated in the draft Harlow Local Plan



Environmental Sustainability

Goal: Net Zero-Carbon by 2030

DESIGN APPROACH: FIRST PRINCIPLES

The following 'First Principles' are to be incorporated to ensure new Garden Town developments are sustainable, and bring practical solutions towards good design. The following First Principles act as a structured design process, and are iterative, with observations made to be referred back to when navigating the varying scales of design. The incorporation of these principles significantly impact on the development of the remainder of the Sustainability sections.

1 | LANDSCAPE-LED DESIGN

Objective:
The three districts are characterised by different types of landscape, and create their own distinct characters. Each landscape form has defining green infrastructure such as hedgerows, woodland and grasslands. Each green infrastructure network and landscape character designations are to be understood as part of the wider context, scale, age, and quality; these include meadowlands and farmlands, hills and lowlands, scarps and valleys. Ecological value and amenity and recreation value from trees and hedgerows, ancient woodlands should be reviewed.

Once observed and understood, the above observations are to be clearly mapped, through context plans, site plans showing existing landscape features, site photographs and surveys.

2 | SUSTAINABLE MOVEMENT

Objective:
Identifying sustainable movement and active transport infrastructure is key to the success of sustainable growth in the Garden Town as they embed connectivity through movement corridors; playing a significant role in location, form and scale of development.

Local routes for everyday journeys to work, schools, and shopping should be identified and as opportunities to knit communities together, rather than sever them. Strong transport links can tie-in with historic pathways identified through fine-grain analysis.

Priority should be given to pedestrian and cycle networks that link to the Garden Town Sustainable Transport Corridor (STC) and wider networks.

3 | ORIENTATION AND FORM

Objective:
Solar orientation must inform the topography, scale and massing of development at early stages of masterplanning, with south-facing buildings, fenestration, and amenity being orientated to take advantage of passive solar gain – absorbing the sun's heat energy to warm buildings and spaces. Building axis' should be orientated in the east-west direction – to take advantage of maximum daylight and heat from the sun which significantly reduces the energy consumption of a building, and can reduce a homes' heating and cooling costs by up to 85%.
To stay cool in the summer months and avoid overheating, external shading provisions should be made to the buildings and surrounding areas, including the use of green infrastructure.

4 | ENERGY HIERARCHY

Objective:
The Energy Hierarchy has been used to highlight the sustainability process new developments should comply with:

BE LEAN: Use less energy: minimising the energy demand of new buildings through fabric performance: This step requires design that reduces the energy demand of a development. Energy Strategies need to demonstrate how energy efficiency measures reduce the energy demand in line with performance targets highlighted in this document.

BE CLEAN & GREEN: Supply energy efficiently: utilising energy efficiently in buildings including for space heating & cooling: Consideration must be given to how heat and energy will be provided to the development using low-carbon heating networks.

BE SEEN: Monitor & Report performance: for at least 5years post-completion to remove the performance gap: This requires all major developments to monitor and report their energy performance post-construction to ensure that the actual carbon performance of the development is aligned with the Garden Town ambitions of a net zero-carbon target.

5 | ADAPTABLE & FUTURE PROOF DESIGN

Objective:
Building strong communities is aided by giving people and families the opportunity to have accommodation that can adapt to respond to their changing needs and abilities. This means looking at the macro-scale provision of a range of house types, adaptable facilities and meanwhile use spaces, through to the micro-scale; the space and ease in ability to extend homes and facilities (physical and digital) to work from home.

While technologies will change, the homes here will carry on for decades - 60+ years, and it is important that strong communities are not broken due to the lack of adaptable design.

DESIGN APPROACH: FIRST PRINCIPLES

6 | FABRIC-FIRST APPROACH

Objective:
A fabric-first approach requires the building envelope to be a high-performance thermal envelope, reducing energy waste. This means the proposed buildings must have external walls, roofs, floors, windows & doors that are: super insulated, airtight, and windtight.

A fabric-first approach includes the windows and doors – which provide significant heat loss and heat gains – depending on solar orientation. Windows and doors must therefore incorporate high-performance glazing to provide comfortable internal temperatures. A high-performance thermal envelope delivers exceptional indoor comfort and building energy efficiency.

7 | VENTILATION & OVERHEATING

Objective:
A mixed-mode (natural and mechanical) ventilation strategy is encouraged for excellent indoor air quality. This involves the incorporation of a whole-house mechanical ventilation with heat recovery system (MVHR) – which is key to delivering radically energy efficiency and exceptional comfort, through providing clean, filtered air into habitable spaces.

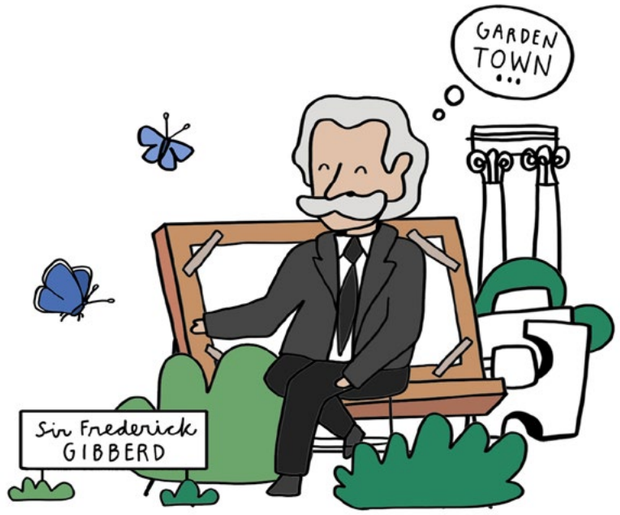
8 | EMBODIED & OPERATIONAL ENERGY

Objective:
Embodied energy is the total energy required for the extraction, processing, manufacture and delivery of building materials to the building site.

All design teams are expected to think about, and reduce the embodied energy required to develop their schemes. For example, depending on location, height, and site suitability, materials like timber could be favoured over less sustainable alternatives such as concrete.

Operational Energy is concerned with the amount of carbon emissions associated with the building's annual operation. Developments should be aiming for net zero carbon – where energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources.

Developments should be designed using realistic predictions of operational energy to avoid performance gap in a buildings' energy use.



9 | RENEWABLE TECHNOLOGIES

Objective:
Renewable energy uses natural resources such as sunlight, wind, tides and geothermal heat which are naturally replenished. Most forms of renewable energy are cheap to operate, but can be expensive to install.

Examples of technologies include; PV's, solar thermal, biomass, ground/air source heat pumps, wind, hydro. The choice of renewable technologies should be dependent on an assessment on site and development suitability.

10 | AIR-TIGHT STRATEGY & THERMAL-BRIDGE FREE

Objective:
An airtight strategy focuses on the internal comfort of a building, and will be required to develop a draught-free building envelope. The draught-free building ensures high energy efficiency, internal user comfort, and protects the building envelope.
The airtight strategy must be continuous to ensure there are no unintended gaps in the building envelope that allow uncontrolled air to leak in and out of the building.

Internal comfort is affected by heat loss through the building fabric, and poor thermal bridging – any gaps or thinning of the insulation. Therefore, the design approach must be to design them out.

RETROFITTING

Note:
Retrofitting of existing buildings has not been addressed in this guidance. This is in anticipation of the influential organisational Design Guide on Retrofitting expected in early 2021. Once released, this document will signpost to industry standards regarding retrofitting.

ENERGY EFFICIENCY & CARBON REDUCTION

OBJECTIVES & REQUIREMENTS

The transition to net zero-carbon by 2030 must begin with providing **genuinely affordable homes**. All new buildings are therefore expected to adopt a fabric-first approach (i.e. Passivhaus Standards), with the expectation that as our grid system decarbonises, and, we build more energy efficient homes, emphasis will be placed on the embodied energy involved in constructing new buildings, utilising more **renewable technologies**.

Currently (2017 figures), all 3 district councils contribute **558CO_2kt** from the domestic sector only (electricity, gas and other contributions). This accounts for almost a third (27%) of all CO2 contributions in the districts and represents a significant opportunity reduce our carbon impact and adopt **circular economy** principles.

With the decarbonising of the National Grid, achieving net zero-carbon will mean strategic sites must respond to the two key components of **whole-life carbon**; **embodied carbon** and **operational energy**. Achieving net zero operational energy means the building does not burn fossil fuels and is 100% powered by renewables.

A **Whole Life Carbon (WLC) Assessment** should be undertaken at pre-application, planning application, and after practical completion, as new homes are expected to last 60+years, with carbon emission reduction in line with the targets in the Checklist. **Appendix 2a** highlights the sequence of activities to complete an assessment.

Embodied Carbon Reduction Strategy:

1. Using circular economy principles of reuse and refurbish, and designing for disassembly at end of life with processes including using offsite construction.
2. Building low-energy homes, using fossil fuel-free technology to supply heating and power to them.
3. Using renewable energy where necessary

Operational carbon Reduction Strategy:

1. Not burning fossil fuels for supply to homes
2. 100% powered by renewable energy i.e.heat pumps
3. Achieving energy performance in line with checklist

Carbon measuring tools (i.e **H\B:ERT**) enable analysis.

KEY LOCAL POLICY & GUIDANCE

HGGT Vision
- Placemaking and Homes: B9, B10, D3
- Landscape & Green Infrastructure: D1, D2, D3, D4
- Sustainable Movement: D6
- The emerging Garden Town Transport Strategy
- Building Futures – Hertfordshire Guide

HDC Local Plan Policy:
- HGT1: Development & Delivery of Garden Town
- PL3: Sustainable Design, Construction & Energy Use
- Harlow Area Action Plan (TC AAP)

EFDC Local Plan Policy:
- SP4(xvii): Highest standards of energy efficiency
- SP5 Garden Town Communities
- DM9: High Quality Design
- DM19: Sustainable Water Use
- DM20: Low Carbon and Renewable Energy

EHDC Local Plan Policy:
- CC3: Renewable and Low Carbon Energy
- DES1 Masterplanning
- DES4: Design of Development (a) & (b)
- HOU8 Self-Build and Custom Build Housing
- CFLR9 Health and Wellbeing
- 11.2 Harlow and Gilston Garden Town

SOCIO-ECONOMIC CO-BENEFITS +

CASE STUDIES (click image to visit website)

Marmalade Lane, Cambridge
Built with fabric-first approach for energy efficient homes, alleviating fuel-poverty.

Goldsmith Street, Norwich
Built to Passivhaus standards, needing little energy for heating and cooling.

Newhall , Harlow
Being highly sustainable with consideration for long-term energy use and incorporating measures to reduce energy use in properties

QUALITY CHECKLIST		Minimum Requirement	Net Zero-Carbon by 2050	Net Zero-Carbon by 2030
En.1	**Operational Energy** (KWh/m²/y)	146 ☐	< 70 ☐	< 0 - 35 ☐
En.2	**Embodied Carbon** ($kgCO_2e/m^2$)	1000 ☐	< 450 ☐	< 300 ☐
En.3	**Space Heating Energy Demand** (KWh/m²/y) of net living space	54.26 ☐	25 ☐	15 ☐
En.4	**Airtightness** (air changes/ hr @ n50)	5 ☐	3 ☐	≤ 0.6 ☐
En.5	**Ventilation Strategy** (m3/hr/person)	Natural - extract fans ☐	Mechanical - with extract fans ☐	Mechanical Heat Recovery (30) ☐
En.7	What is the on-site **reduction in CO_2 emissions** against Building Regulations Part L (2013)?	0-34% ☐	35%-50% ☐	≥ 50% ☐
En.8	For applications greater than 99no. units, what BREEAM Communities Level is met?	Very Good ☐	Excellent ☐	Outstanding ☐
En.9	Thermal Bridging y-value (W/m2K)	0.0051 ☐	0.0039 ☐	0 ☐
En.10	What **Fabric U-Values** has the proposal been designed to meet? W/(m2K)	☐	☐	☐
	External Walls	0.30 - 0.16	0.15 - 0.11	< 0.1
	Floor	0.25 - 0.11	0.10 - 0.08	< 0.07
	Roof	0.20 - 0.13	0.12 - 0.10	< 0.1
	Windows (triple glazing) & Doors	2.00 - 1.4	1.3 - 1.00	< 0.9
	Please attach **Tables 12 & 13** of your **Whole Life Carbon Assessment**	(see. **Appendix 2a + 2b**) ☐		
	Attach certification of the above chosen standards, and use 'Statement' page for additional information			

RENEWABLE ENERGY

OBJECTIVES & REQUIREMENTS

Our recent **extreme weather** has highlighted the need to ensure that buildings constructed today are fit for the future, and, designed for resilience over the next 60+ years. Other **Climate mitigation and adaptation** strategies span the breadth of this document, so this section focuses on the use of renewable energy for our heat supply, as heat demand is estimated at more than 40% of the **energy consumed** across all 3 boroughs.

The nature and scale of the strategic sites make them ideal to ensure that the heating and hot water they generate are **fossil fuel free**, supporting less demand on the national grid.

On-site renewable technologies such as **Heat Pumps, Solar Photovoltaics**, and **Solar Thermals** should be explored for adoption, and paired with each other to provide the greatest benefit to new developments; i.e. heat pumps paired with efficient buildings, and PV's paired with electric charging enabling **sustainable travel**.

Applicants are to use the **LETI Heat Decision Tree** (Appendix 3) at concept and developed design stages, to assist them in choosing the most appropriate heating system; where renewable systems should be prioritised over connecting to district heating networks, which depend on fossil fuels.

New Developments should be designed to;

- **Heat Sharing Network**: joining a heat sharing network is particularly relevant for these strategic mixed-use development sites where opportunities for load shifting and heat sharing occur.
- **Minimise system temperatures**: high temperatures in heating systems are synonymous with fossil-fuel combustion
- **Reduce Heat Demand** at point of use: The greatest opportunity to meeting net zero-carbon emissions is to reduce the amount of heat needed: achieved through a fabric-first approach and limited hot water use, coupled with reuse of low temperature waste heat sources.
- **Lean Design**: load modelling can predict energy use and help size plant requirement.
- **Harness Waste Heat**: heat released as a by-product of an existing process enables otherwise wasted heat to contribute to meeting energy demands.

KEY LOCAL POLICY & GUIDANCE

HGGT Vision
- Placemaking and Homes: B9, B10, D3
- Landscape & Green Infrastructure: D1, D2, D3, D4
- Sustainable Movement: D6

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- DM20: Low Carbon and Renewable Energy

EHDC Local Plan Policy:
- CC3: Renewable and Low Carbon Energy
- DES4: Design of Development (a) & (b)
- Building Futures: Sustainable Design Toolkit

SOCIO-ECONOMIC CO-BENEFITS +

CASE STUDIES (click image to visit website)

Project Etopia, Corby
Uses combined solar PV's and thermal panel to deliver net zero carbon on site.

Active Homes, Neath, South Wales
Battery technology used to store energy and solar PV & TSC's to generate 60% energy.

Tallack Road, Waltham Forest, London
Large-scale communal Air Source Heat Pump to feed ambient temperature heat network

QUALITY CHECKLIST		Minimum Requirement	Net Zero-Carbon by 2050	Net Zero-Carbon by 2030
Rn.1	What on-site renewable energy technologies have been included in your development?	PV's + EV charging / CHP's ☐	Low-temperature District Heating ☐	Electric Heat Pumps / Solar Thermal ☐
Rn.2	What percentage of CO_2 emission reduction will be provided from on-site renewable energy sources? (SAP 10 carbon emission factors to be used for calculation)	> 20% ☐	> 50% ☐	> 70% ☐
Rn.3	What percentage of household electricity will on-site renewable technology provide? (net zero operational carbon does not burn fossil fuel and is 100% powered by renewables)	> 35% ☐	> 50% ☐	100% ☐
Rn.4	Have any government incentivised schemes been taken advantage of? i.e. Non-Domestic Renewable Heat Incentive (RHI)	None ☐	N/A	Non-Domestic RHI ☐
Rn.5	Photovoltaic Energy Demand (kWh/m2/yr)	-854 ☐	-2,563 ☐	-2,563 ☐
Rn.6	Domestic hot water (kWh/m2/yr)	42 ☐	20 ☐	6 ☐
	Please attach Energy Assessment	☐		
	Please attach relevant certification of the above standards you have chosen	☐		
	Please use 'Sustainability Summary' pages where you are adding any further information			

SUSTAINABLE MOVEMENT

OBJECTIVES & REQUIREMENTS

Sustainable movement and active transport infrastructure are key to the success of sustainable growth in the Garden Town. Positive travel choices that enable sustainable living lie at the heart of the **Garden Town's Vision**, **Transport Strategy**, and **Healthy Town Framework**. The three overarching objectives of the HGGT Transport Strategy are:

1. 50% of all trips originating from and ending within the whole Garden Town should be by active and sustainable travel modes, with the same mode share target applying to 60% of trips originating from and ending within the new Garden Communities.

2. Mobility options will be based on a hierarchy of importance: Reduce the need to travel; walking and cycling; public transport; and lastly private vehicle use.

3. Support and encourage a culture of active and sustainable travel ensuring all journeys will be efficient and safe.

Masterplanning for Sustainable Movement should address: **walkable neighbourhoods, sociable streets and placemaking**; cycling, walking and public transport network; behaviour change programmes; rebalancing car use and parking design (including carpooling and car sharing); **futureproofing with adaptable technology**; deliveries and servicing; and construction impacts.

Sustainable Transport Corridors (STCs) will be a series of strategic public travel routes through the Garden Town providing inclusive, coherent, safe, direct, convenient and **attractive public and active travel options** that will connect neighbourhoods quickly with key destinations such as the town centre and Harlow Town railway station. The design of these should follow the HGGT STC Placeshaping Principles and Transport User Hierarchy.

'Mobility Hubs' provide transport interchange as well as **social and community focal points**. All new homes should be within 800m (10 minute walk) of a hub and within 400m of a bus stop.
Designs must futureproof for change in travel habits, including reallocating parking and road space, innovation in travel technology, last mile deliveries and **electric charging**.

SOCIO-ECONOMIC CO-BENEFITS +

KEY LOCAL POLICY & GUIDANCE

HGGT Vision & Design Guide
- HGGT Transport Strategy
- HGGT Healthy Town Framework
- HGGT Local Cycling & Walking Infrastructure Plan (LCWIP)
- HGGT STC Placeshaping Principles (draft)
- HGGT Hubs 'How To' Guide (draft)
- HGGT Parking Strategy (emerging)

Essex County Council
- Local Transport Plan 3
- Sustainable Modes of Travel, Speed & Traffic Management Strategies
- Essex Design Guide

Hertfordshire Council Council
- Local Transport Plan 4
- Hertfordshire Active Travel Strategy/Sustainable Modes of Travel Strategy
- Roads in Hertfordshire: A Design Guide

Harlow Local Plan Policy:
- HGT1: Development & Delivery of the Garden Town
- PL3: Sust. Design, Construction & Energy Use
- IN1 Development and Sustainable Modes of Travel
- WE2 Green Wedges and Green Fingers
- Harlow Town Centre Area Action Plan
- Harlow Cycling Action Plan

EFDC Local Plan Policy:
- SP 3 Place Shaping
- SP4: Development & Delivery of Garden Communities in HGGT
- T 1 Sustainable transport choices
- T 2 Safeguarding of routes and facilities
- DM 9: High Quality Design
- DM 22: Air Quality

East Herts Local Plan Policy:
- DES4: Design of Development (a) & (b)
- TRA1 Sustainable Transport
- TRA2 Safe and Suitable Highway Access Arrangements and Mitigation
- TRA3 Vehicle Parking Provision

CASE STUDIES (click image to visit website)

Dunsfold Park Masterplan, Surrey
Designing a walkable village entirely within 10 minutes' walk of the Market Square.

St Chads Development, Essex
Designated as shared surface 'home zones', streets are designed to prioritise pedestrians and cyclists, while reducing vehicular speed.

VeloCity, National Infrastructure Commission
Enriching village life while creating new homes and employment in healthy and socially cohesive places.

QUALITY CHECKLIST		Low Quality		High Quality
Tr.1	Have walkable neighbourhoods been designed as a first principle, based on the HGGT Transport User Hierarchy?	No - vehicle access design prioritised ☐	Yes - transport hierarchy considered ☐	Yes - active travel, connected networks, topography, user hierarchy as design drivers ☐
Tr.2	Have you followed the STC Placeshaping Principles when designing the STC and its transport interchanges?	Not demonstrated ☐	Yes some achieved ☐	Yes - all achieved ☐
Tr.3	Are bus stops and hubs accessible and attractive for new and existing residents? Including regular service.	Hubs and bus stops provided ☐	STC Hubs within 800m, bus stops within 400m of all new homes ☐	STC hubs co-located with community facilities, sheltered bus stops within 800m/ 400m of all homes, ☐
Tr.4	Have inclusive design principles / accessibility for all regarding sustainable movement been achieved?	Meets Equalities Act ☐	Inclusive Design Statement provided ☐	Exemplary inclusive design provided ☐
Tr.5	Has a Transport Assessment been provided that clearly demonstrates how the 60% mode split target is being achieved, as defined by the Garden Town?	Yes - minimum TA provided ☐	Yes - ☐	Yes - multi-modal modelling, and roadmap for achieving HGGT targets ☐
Tr.6	Has an assessment been provided against a recognised tool? E.g. Transport for New Homes Checklist/ Healthy Streets Check for Designers/ Healthy Herts evaluation	No ☐	Yes - assessment undertaken ☐	Yes - assessment undertaken and exemplary score achieved ☐
Tr.7	Has a Sustainable Travel Plan been provided? Has Modeshift Stars accreditation been explored?	No ☐	Yes - Sustainable Travel Plan provided ☐	Yes - including behaviour change programme, travel coordinator, monitoring ☐
	Please use 'Sustainability Summary' pages where you are adding any further information			

WATER EFFICIENCY

OBJECTIVES & REQUIREMENTS

The combined challenges and opportunities of growing populations within the Garden Town, changing land uses, the finite supply of water, action is required now to ensure the availability of water for the future without having a detrimental impact on the environment. There is likely to be less water available for future generations and therefore a greater need for water demand management and water efficiency in the area. New development should therefore not lead to an overall increase in demand for water.

The strategy therefore looks for new developments to:

i) **Reduce the risk of flood** through the use of sustainable drainage infrastructure and robust **green infrastructure design** - including the use of biophillic design and permeable hard landscape.

ii) **Minimise use of mains water** by incorporating water saving measures and equipment, and, designing residential development so that mains water consumption is reduced in accordance with requirements found in the table overleaf.

iii) **Promote the use of rainwater harvesting** and using dual potable and grey water recycling measures

To avoid increased flood risk, and make the most effective use of the existing and planned drainage infrastructure, rainwater should be managed as a valuable resource, rather than a waste product and innovative ways of using water can be incorporated into **community infrastructure**.
There is a drive towards sustainable drainage systems that mimic the way nature manages rainwater. As a result, designing new developments for optimal sustainable water consumption has become even more important, with the Garden Town enabling ambitious targets for water efficiency in all new developments.

Existing homes and workplaces should become more water efficient through metering and water efficiency retrofits.

New developments should embrace **carbon reduction** systems such as a **waste water heat recovery**.

KEY LOCAL POLICY & GUIDANCE

HGGT Vision
- Placemaking and Homes: B9, B10, D3
- Landscape & Green Infrastructure: D1, D2, D3, D4
- Sustainable Movement: D6
- HGGT Watercycle Study 2018
- The emerging Garden Town Transport Strategy

HDC Local Plan Policy:
- HGT1: Development & Delivery of Garden Town
- PL3: Sustainable Design, Construction & Energy Use • PL10: Water Quality, Water Management, Flooding and Sustainable Drainage Systems
- Harlow Area Action Plan (TC AAP)

EFDC Local Plan Policy:
- SP4(xvii): Highest standards of energy efficiency
- DM9: High Quality Design
- DM19: Sustainable Water Use
- DM20: Low Carbon and Renewable Energy

EHDC Local Plan Policy:
- CC3: Renewable and Low Carbon Energy
- DES4: Design of Development (a) & (b)
- Building Futures: Sustainable Design Toolkit
- WAT3 Water Quality and the Water Environment
- WAT4 Efficient Use of Water Resources
- WAT5 Sustainable Drainage

Essex:
- The Sustainable Drainage Systems Design Guide For Essex: Weblink **Here**

CASE STUDIES (click image to visit website)

Waltham Village Square | Rain Gardens
Full of native shrubs and flowers planted in a depression to temporarily hold and soak-in rain water runoff from roofs & driveways

Knostrop Weir, Leeds | Flood Management
Provides three new pneumatically moveable weirs that can be lowered to let floodwater discharge quickly downstream.

Ladywell Fields, Lewisham | SuDS
Creating sustainable drainage and reduce flooding by modifying the river channel with a naturalistic setting incorporating backwaters and wetlands.

QUALITY CHECKLIST		Minimum Requirement	Net Zero-Carbon by 2050	Net Zero-Carbon by 2030
W.1	**Potable Water:** What is the expected internal water use (litres/person/day)?	110 ☐	95 ☐	75 ☐
W.2	What water collection or recycling measures will be used?	100% provision of water butts ☐	Rainwater harvesting systems ☐	Grey water recycling & harvesting ☐
W.3	How much of the hard surfaces within the development and conveyance systems will be permeable (i.e streams, swales)	50% ☐	75% ☐	100% ☐
W.4	Will water saving devices be installed in the development? e.g. low flush toilets, smaller baths , taps and showers with flow regulators	No ☐	N/A	Yes ☐
W.5	What additional Sustainable Urban Drainage (SUDs) measures have been proposed? (i.e. permeable surfaces, rain gardens, green roofs, ponds/wetlands, soakaways)			
	Please use 'Sustainability Summary' pages where you are adding any further information			

GREEN INFRASTRUCTURE

OBJECTIVES & REQUIREMENTS

The **HGGT Vision** sets out indicators for landscape and green infrastructure: proposals should respond to the distinctive landscape setting; expand and enhance the town's Green Wedge network; improve access to, and the quality of, the surrounding Green Belt; and support a sustainable and biodiverse environment.

The green infrastructure network of the Garden Town and wider area must be considered in an integrated way to meet sustainability, placeshaping and **socio-economic** objectives. Key assets include the Stort Navigation & Stort Valley; the River Lea & Lee Valley; the Green Wedge and Finger network; Harlow Town Park; existing and Ancient woodland including Epping Forest; neighbourhood allotments & green spaces; the proposed Gilston Country Park; proposed Suitable Alternative Natural Green Space (SANGS); new '**Super Greenways**'; sports, play and adventure spaces.

Proposals must be landscape-led from the start and across all design stages, and green infrastructure should be high quality and **multifunctional**, as set out in the **East Herts Gilston Area Charter SPD** and EFDC Green Infrastructure Strategy.

The latest **Environmental Bill** requires development to deliver at least a 10% **Biodiversity Net Gain** (BNG), Stewardship and Maintenance strategies should clearly set out net gain outcomes, through habitat creation or enhancement for a minimum of 30 years. Local species should be specified to ensure long-term resilience.

Design of streetscapes and amenity spaces, with urban greening such as street trees, pocket parks, garden hedgerows, Super Greenways, greens roofs and swales, can provide placeshaping benefits as sociable streets as well as contributing to climate resilience, through biodiversity enhancement and mitigating overheating.

Multifunctional green infrastructure at various scales has an important role to play in **placeshaping, health, wellbeing, and community resilience**. Play, social spaces, food growing, art and heritage trails should be integrated early into designs, with active frontages onto green spaces, to ensure natural surveillance.

SOCIO-ECONOMIC CO-BENEFITS +

KEY LOCAL POLICY & GUIDANCE

- HGGT Vision & Design Guide
- HGGT Healthy Town Framework

Harlow Council: Local Plan Policy:
- HGT1: Development & Delivery of the Garden Town
- PL3: Sust. Design, Construction & Energy Use
- PL8: Biodiversity and Geodiversity Assets
- WE3: Biodiversity and Geodiversity
- Harlow Area Action Plan (TC AAP)

EFDC Local Plan Policy:
- SP 3 Place Shaping
- SP 7 The Natural Environment, Landscape Character and Green and Blue Infrastructure
- DM 1 Habitat protection and improving biodiversity
- DM 2 Epping Forest SAC and the Lee Valley SPA
- DM 3 Landscape Character, Ancient Landscapes and Geodiversity
- DM 5 Green and Blue Infrastructure
- DM 6 Designated and undesignated open spaces
- DM9: High Quality Design
- DM 15 Managing and reducing flood risk
- DM 22 Air Quality
- EFDC Green Infrastructure Strategy

EHDC Local Plan Policy:
- DES1: Masterplanning
- DES2 Landscape Character
- DES3 Landscaping
- DES4: Design of Development (a) & (b)
- CFLR1 Open Space, Sport and Recreation
- CFLR2 Local Green Space
- CFLR4 Water Based Recreation
- CFLR9 Health and Wellbeing
- NE3 Species and Habitats
- NE4 Green Infrastructure
- East Herts Gilston Area Charter SPD

Wider Area
- Green Essex Strategy
- Essex Biodiverstiy Action Plan
- Hertfordshire Strategic Green Infrastructure Plan 2011
- Stort Catchment Management Plan
- Green Arc Strategy

CASE STUDIES (click image to visit website)

Ecology & wayfinding: Wealdstone Brook
Integrating placeshaping, wayfinding, and ecological enhancement at.

Community cohesion: Drapers Field
Addresses issues of community cohesion and improvements to health and wellbeing.

Biodiversity in Architecture: Barratt Homes
A progressive approach to wildlife-friendly housing, with 'Swift Bricks' built into homes.

	QUALITY CHECKLIST	Minimum Requirement		Best Practice
Gr.1	Has a high quality **Landscape-led approach** been demonstrated?	No ☐	Yes - some landscape analysis undertaken ☐	Yes - topography, vistas, landscape character & features driving design ☐
Gr.2	What level of **Biodiversity Net Gain** does your development achieve?	0-9% BNG ☐	10-15% BNG ☐	15%+ BNG ☐
Gr.3	Have Stewardship and Maintenance Strategies been provided including for green infrastructure and biodiversity net gain?	No strategy ☐	Yes - Outline strategy provided ☐	Yes - 30 yr strategy with input from community ☐
Gr.4	Have play, community amenity and food production opportunities been proposed? All new homes should be within 800m of allotments, and **Fields in Trust distances** should be followed for play spaces.	No ☐	Yes - locations mapped with walking isochromes ☐	Yes - locations mapped, character of spaces defined, strategies for play / food / active frontages ☐
Gr.5	Have you used recognised tools to assess the value/ quality of green infrastructure? E.g. **Natural Capital Tool**/ **Ecometric**/ **Building With Nature**/ Social Value Calculator	No ☐	Yes - qualitative assessment undertaken ☐	Yes - qualitative assessment/ value calculated with exemplary score ☐
Gr.6	Has an overheating assessment or modelling been provided, as set out in **UKGBC's Housing Standards Playbook**, taking into account impact of green infrastructure?	No ☐	Yes - some assessment ☐	Yes - UKGBC Playbook followed ☐
Gr.7	Has green infrastructure been proposed at different scales, with clarity on how its quality and quantity reinforces the Garden Town Vision?	Different scales not explored ☐	Yes - different scales shown, roles/ function undeveloped ☐	Yes - small, medium and large GI shown, with qualities and roles defined ☐
	Please attach your **BNG Report** Please use 'Sustainability Summary' pages where you are adding any further information			

CIRCULAR ECONOMY

OBJECTIVES & REQUIREMENTS

New developments should promote **circular economy** outcomes and aim to be net zero waste. In the UK, the largest contributor to waste nationally is the construction and demolition industry where a third of all waste is generated.

The strategic sites in the Garden Town are to be designed to reduce construction & **operational waste** and enable ease of access for future occupants to recycle and reduce waste. This can be encouraged through adopting a circular economy approach (including the use of modern methods of construction (MMC) & Design for Manufacture and Assembly (DfMA)processes) and the **Waste Hierarchy** found in the **DEFRA Guidance**.

Building in Layers principles should be adopted to determine realistic lifetimes for the elements of a building, and adapt the structure and fabric. Homes should be designed to be adaptable and flexible by considering the intended lifespan of each independent building layer, optimising building longevity and maximising material reclamation at end-of-life.

3 Key Principles expand the Circular Economy process:

1. Conserve Resources, Increase Efficiency, Source Ethically:

- Minimise the quantities of materials used: by specifying low embodied carbon materials
- Minimise the quantities of other resources used: including **energy**, **water**, and land
- Source materials responsibly and sustainably: including all materials to be reusable

2. Eliminate waste and ease maintenance by:

- Long-life & Loose fit: build to adapt to changing social, physical and economic environments.
- Design for Disassembly: at the commencement of the project, set out deconstruction plan and capture asset value.

3. Manage waste sustainably and at the highest value:

- Construction, demolition & excavation waste
- Operation & Municipal waste

A **Circular Economy Statement** should be provided to demonstrate chosen strategy.

SOCIO-ECONOMIC CO-BENEFITS +

KEY LOCAL POLICY & GUIDANCE

HGGT Vision
- Placemaking and Homes: B9, B10, D3
- Landscape & Green Infrastructure: D1, D2, D3, D4
- Sustainable Movement: D6

HDC Local Plan Policy:
- HGT1: Development & Delivery of the Garden Town
- PL3: Sustainable Design, Construction & Energy Use
- PL9: Pollution and Contamination
- Harlow Area Action Plan (TC AAP)

EFDC Local Plan Policy:
- SP4(xvii): Highest standards of energy efficiency
- DM9: High Quality Design
- DM19: Sustainable Water Use
- DM20: Low Carbon and Renewable Energy
- DM 7 Heritage Assets
- DM 8 Heritage at Risk
- DM 11 Waste recycling facilities on new development
- DM 18 On site management of waste water and water supply

EHDC Local Plan Policy:
- CC3: Renewable and Low Carbon Energy
- DES4: Design of Development (a) & (b)
- HA1 Designated Heritage Assets
- HA2 Non-Designated Heritage Assets
- HA3 Archaeology
- HA4 Conservation Areas
- HA7 Listed Buildings

CASE STUDIES (click image to visit website)

Illford Community Market, London
Designed for five year and will be dismantled and reconfigured on future meanwhile sites.

London Olympic Park, London
A waste target of 90% diversion from landfill of demolition waste by weight

Clarion Housing, Merton Regeneration
Zero-carbon development of 208 homes, achieving Code for Sustainable Homes Level 5.

QUALITY CHECKLIST		Minimum Requirement	Net Zero-Carbon by 2050	Net Zero-Waste by 2030
CE.1	How much of the materials used on site are **sourced from ethical and responsible supply chains**?	80% ☐	95% ☐	100% ☐
CE.2	How much of the materials used are non-toxic?	☐	☐	100% ☐
CE.3	How much of the materials used can be **easily extracted, recycled, and manufactured**?	80% ☐	90% ☐	95% ☐
CE.4	The new buildings are circular-by-design to what amount?	20% ☐	40% ☐	65% ☐
CE.5	How much construction, demolition and excavation (**CD&E**) **waste** will be recycled? This is to be incorporated in your Construction Management Plan	☐	☐	≥ 95% ☐
CE.6	How much **municipal waste** (operational waste) will be recycled or composted vs sent to landfill or energy recovery?	☐	☐	65% : 35% ☐
CE.7	How much of the materials used are '**reusable**'	☐	☐	80% ☐
CE.8	How much of the materials used are '**reused**'	☐	☐	50% ☐
CE.9	How much biodegradable and recyclable waste will be **diverted to landfill**?	☐	☐	0 ☐
	Please attach the **Design Stage Circular Economy Statement** (see guidance Here)			
	Please use 'Sustainability Summary' pages where you are adding any further information			

WASTE MANAGEMENT

OBJECTIVES & REQUIREMENTS

New developments should promote **circular economy** outcomes and aim to be net zero waste. In the UK, the largest contributor to waste nationally is the construction and demolition industry where a third of all waste is generated.

The strategic sites in the Garden Town are to be designed to reduce construction waste and enable ease of access for future occupants to recycle and reduce waste. This can be encouraged through adopting a circular economy approach and the **Waste Hierarchy** found in the **DEFRA Guidance**.

Building in Layers principles should be adopted to determine realistic lifetimes for the elements of a building, and adapt the structure and fabric. Homes should be designed to be adaptable and flexible by considering the intended lifespan of each independent building layer, optimising building longevity and maximising material reclamation at end-of-life.

3 Key Principles expand the Circular Economy process:

1. Conserve Resources, Increase Efficiency, Source Ethically:

- Minimise the quantities of materials used: by specifying low embodied carbon materials
- Minimise the quantities of other resources used: including energy, water, and land
- Source materials responsibly and sustainably: including all materials to be reusable

2. Eliminate waste and ease maintenance by:

- Long-life & Loose fit: build to adapt to changing social, physical and economic environments.
- Design for Disassembly: at the commencement of the project, set out deconstruction plan and capture asset value.

3. Manage waste sustainably and at the highest value:

- Construction, demolition & excavation waste
- Operation & Municipal waste

A **Circular Economy Statement** should be provided to demonstrate chosen strategy.

KEY LOCAL POLICY & GUIDANCE

HGGT Vision
- Placemaking and Homes: B9, B10, D3
- Landscape & Green Infrastructure: D1, D2, D3, D4
- Sustainable Movement: D6

HDC Local Plan Policy:
- HGT1: Development & Delivery of the Garden Town
- PL3: Sustainable Design, Construction & Energy Use
- PL9: Pollution and Contamination
- Harlow Area Action Plan (TC AAP)

EFDC Local Plan Policy:
- SP4(xvii): Highest standards of energy efficiency
- DM9: High Quality Design
- DM19: Sustainable Water Use
- DM20: Low Carbon and Renewable Energy
- DM 7 Heritage Assets
- DM 8 Heritage at Risk
- DM 11 Waste recycling facilities on new development
- DM 18 On site management of waste water and water supply

EHDC Local Plan Policy:
- CC3: Renewable and Low Carbon Energy
- DES4: Design of Development (a) & (b)
- HA1 Designated Heritage Assets
- HA2 Non-Designated Heritage Assets
- HA3 Archaeology
- HA4 Conservation Areas

SOCIO-ECONOMIC CO-BENEFITS +

CASE STUDIES (click image to visit website)

Eddington, Cambridge
Underground chutes replace thousands of traditional wheelie bins in an innovative waste disposal system.

London Olympic Park, London
A waste target of 90% diversion from landfill of demolition waste by weight

QUALITY CHECKLIST		Minimum Requirement	Net Zero-Carbon by 2050	Net Zero-Waste by 2030
W.1	How much of the materials used on site are **sourced from ethical and responsible supply chains**?	☐	☐	☐
W.2	How much of the materials used are non-toxic?	☐	☐	☐
W.3	How much of the materials used can be **easily extracted, recycled, and manufactured**?	☐	☐	☐
W.4	The new buildings are circular-by-design to what amount?	☐	☐	☐
W.5	How much construction, demolition and excavation (**CD&E**) **waste** will be recycled? This is to be incorporated in your Construction Management Plan	☐	☐	☐
W.6	How much **municipal waste** (operational waste) will be recycled or composted vs sent to landfill or energy recovery?	☐	☐	☐
W.7	How much of the materials used are '**reusable**'	☐	☐	☐
W.8	How much of the materials used are '**reused**'	☐	☐	☐
W.9	How much biodegradable and recyclable waste will be **diverted to landfill**?	☐	☐	☐
	Please attach the **Operational Waste Strategy** promoting reuse & recycling			
	Please use 'Sustainability Summary' pages where you are adding any further information			

POLLUTION: CLEAN AIR QUALITY

OBJECTIVES & REQUIREMENTS

In this section, pollution focuses on air pollution as it acts as the single largest influence on air quality to human health in the districts. This section should not be used as a substitute for work otherwise undertaken in any normal full planning application.

Every new development will have an impact on air quality, usually by increasing emissions from buildings or from traffic generation. The links between poor air quality, human health, and the environment are well documented and is classed by Public Health England as a major public health risk alongside cancer, heart disease and obesity. **Air pollution causes more harm than passive smoking and is responsible for the early deaths of an estimated 40,000 people in the UK**. Air Pollution arises from sources and activities including; traffic and transport, industrial processes, domestic and commercial premises, energy generation, agriculture, waste storage/treatment and construction sites.

This section adopts Public Health England's 2019 "**net health gain**" principles to improve outdoor air quality and public health. New developments should adopt a strategic approach, in line with each Boroughs' Air quality policy and guidance, including any requirements on Air Quality Management Areas, Local Air Quality Action Plan, and development Air Quality Assessments.

Clean by Design : Better by Design:
The following net health gain principles should be incorporated in design to reduce emissions and contribute to better air quality management; applicable irrespective of air quality assessments:

1. **Reduce the need to travel by car to destinations**
2. Provide **zero and low-emission travel options** (EV's)
3. **Not siting buildings with vulnerable users** (i.e. schools, nurseries, care homes) in areas where pollution levels are likely to be higher.
4. Incorporate **Clean Air Zones in larger developments**
5. Avoid creating 'street canyons' which encourage pollution to build up
6. Incorporate **green infrastructure** to promote carbon and pollution sequestration
7. Orientate and design buildings to **rely less on heating and cooling systems**
8. Siting living accommodation away from roadsides
9. Incorporate **whole-house ventilation systems for good indoor air quality**

KEY LOCAL POLICY & GUIDANCE

HDC Local Plan Policy:
- HGT1: Development & Delivery of the Garden Town
- PL3: Sustainable Design, Construction & Energy Use
- PL9: Pollution and Contamination
- Harlow Area Action Plan (TC AAP)

EFDC Local Plan Policy:
- SP4(xvii): Highest standards of energy efficiency
- DM9: High Quality Design
- DM19: Sustainable Water Use
- DM20: Low Carbon and Renewable Energy
- DM 22 Air Quality

EHDC Local Plan Policy:
- CC3: Renewable and Low Carbon Energy
- DES4: Design of Development (a) & (b)
- Building Futures: Sustainable Design Toolkit
- EQ4 Air Quality

ASSURING PERFORMANCE

OBJECTIVES & REQUIREMENTS

Post-construction energy and quality monitoring is required to bridge the '**performance gap**' found in new developments and achieve net zero-carbon .
Achieving this requires a true understanding of a buildings' operational energy .
The performance gap is the difference between predicted design and as-built performance of a building.

Addressing the performance gap in new homes and buildings is critical, as this affects the quality of new homes through; residents comfort in terms of poor **thermal comfort**, **indoor air quality**, health challenges such as **respiratory issues**. Furthermore, a poor performing building leads to higher energy bills due to poor building fabric, and exasperating challenging health conditions.

Findings from studies undertaken by **Innovate UK** and the **Zero Carbon Hub** consisting over 300 homes, results showed that none met their intended performance targets when tested, with the majority falling even short of Part L and Part F of the Building Regulations by a margin of over 50% post-completion.

The main challenges found in the studies are **highlighted in the green box**, and design teams and applicants are therefore required to undertake Post Occupancy Evaluation (PoE); assessing both performance standards and quality of life, to address these issues.

All major developments will therefore be required to monitor and report on their actual **operational energy** performance in order to close this performance gap and meet the net zero carbon by 2030 targets committed to by each partner authority.

A template PoE form can be found in **Appendix 8** and should be used to show compliance. Broadly; evaluation will be required at the following stages:
1. **Planning: predicted performance assessment**
2. **As-built: performance assessment**
3. **In-use: quality of life assessment**

Further information can be found on the **GLA website** and the **Zero Carbon Hub website**.

PRIORITY ISSUES IN ASSURING PERFORMANCE:

1. Energy Literacy
2. Improving Quality Output
3. Demonstrating Performance
4. Evidence Gathering & Dissemination

Social & Economic Sustainability

Goal: Enabling integrated communities

INTRODUCTION

OBJECTIVES & REQUIREMENTS

This section looks at the direct impacts of places and people. Specifically, this section deals with how new developments on the strategic sites (The East of Harlow site, Gilston Villages 1-7, Waterlane, Latton Priory) will affect the existing diverse communities they connect to.

Designing for Social Sustainability requires a collaborative approach between the private and public sector in order to create new communities that thrive. With the scale and pace of new development, we must ensure that we are building communities that are socially, and economically, as well as environmentally sustainable, and critically, that reflect the needs of existing communities. The Draft Harlow Town Centre Area Action Plan must be referred to in order to knit existing community requirements with new community ambitions.

It is important to address social sustainability at the beginning of development, as managing the long-term costs and consequences of decline and failure in new settlements is an issue of public value and political accountability. The checklist therefore focuses on the issues raised in the HGGT Healthy Towns Framework.

The checklist in this section is designed as a Social Sustainability Toolkit resource for Harlow - aimed at everyone involved in planning, designing and developing new housing in Gloucestershire.

Questions have been designed with the specific aim that more can be done to turn new housing developments into flourishing communities that support all residents to thrive.

Incorporating the necessary 'community ingredients' that enable communities to thrive and that boost individual wellbeing.

Community Ingredients cut across different stages of developments including:

1. **Planning & Design**
2. **Construction & Occupation**
3. **Long-term Stewardship**

In implementing the following Socio-Economic Sustainability Principles, developments ready themselves for strong communities that are well-integrated to the

KEY LOCAL DOCUMENTS TO BE CONSIDERED

NHS Healthy New Towns:
Design, Deliver and Manage

Harlow Council:

- **Draft Harlow Town Centre Area Action Plan**
- Harlow Health & Wellbeing Partnership Strategy
- Harlow Economic Development Strategy
- Livewell Essex
- Harlow Agewell Guide
- HGGT Infrastructure Delivery Plan (IDP)
- HGGT Vision
- HGGT Design Guide
- HGGT Transport Strategy
- HGGT Healthy Towns Framework
- HGGT Stewardship Commission
- **Essex & Hertfordshire Digital Innovation Zone**
- **Gilston Area Charter**
- Harlow Health and Wellbeing Strategy
- EFDC / HDC / EHDC Statement of Community Involvement (SCI)
- **Harlow Sculpture Town**
- **EFDC Youth Projects interactive map**
- **Visit Epping Forest**
- EFDC Green Infrastructure Strategy
- **NHS Health New Towns**
- **The Essex Map**
- etc

Herts & Essex Community Farm.
Photo credit: H&E Community Farm

TBC

TBC

Herts & Essex Community Farm.
Photo credit: Harlow Livewell Campaign

HEALTH & WELLBEING

OBJECTIVES & REQUIREMENTS

To promote a **healthy lifestyle**, active travel should be encouraged and invested in, including ensuring **good accessibility to** sustainable transport and transportation; embedding the design of **high-quality public and** green spaces; the use of green infrastructure and biodiversity to promote good mental and physical health; and investment in long-term resilient buildings and infrastructure.

The **Harlow Health & Wellbeing Strategy** highlights the following key priorities that should be embedded in new developments:

1. Early Help and Startwell
2. Bewell, Staywell, Workwell
3. Agewell
4. Physical Activity and Mental Health

Additional information on other partners in Essex can be found on the **Livewell website** and **Agewell Guide**.

The following actions are therefore required from all new developments:

- Look for how this new development can increase physical activity, active living, active travel, and sport - refer to the Green Infrastructure page in this Guidance.
- Promote mental health and wellbeing through clear connections to existing support services (pop-out to list these)
- Encourage older people to "Agewell" by living independent lives through increased community support and reduced winter pressures
- Support children and young people through "Startwell" by incorporating access to affordable activities such as outdoor gyms, community allotments, travelling farms, and urban farming - helping to grow local fruits & vegetables - which also allow them to Eatwell.
- Incorporating flexible workspaces such as co-working, as part of the social infrastructure in new developments to help residents Workwell, particularly in light of pandemics like Covid-19 which will change the way we work moving forward.

VOICE & INFLUENCE

This involves **governance structures** to represent existing residents and engage new ones in **shaping local decision-making and stewardship**.

RESILIENCE & ADAPTABILITY

Provision of flexible forward-planning; including housing, **infrastructure, and services** that can **adapt over time**; and the incorporation of meanwhile use of buildings and public spaces.

COMMUNITY STRENGTH & SOCIAL INFRASTRUCTURE

OBJECTIVES & REQUIREMENTS

Ensuring the **existing social fabric is protected** from disruption, and can benefit from new neighbouring development through shared spaces, collective activities and social architecture to **foster local networks, belonging and community identity**. A strong sense of local ownership; ensuring **new communities are well-integrated** into the surrounding area, including utilising critical measures such as stakeholder engagement and post-development governance; ensuring the social infrastructure to promote **thriving social networks**; and a diversity of building and non-building uses and tenures.

Incorporating the right (**formal and informal) amenities** to enable **social inclusion**. This section focuses on applicants having a thorough understanding of the local community. Applicants are therefore expected to undertake meaningful engagement with the local communities, particularly those closest to the relevant strategic site, ensuring members, local charity groups, local networks' comments are taken on board and responded to. The applicant will need to demonstrate what stakeholder engagement have been undertaken, beyond the requirements of the Statement of Community Engagement requirements. The Garden Town undertook high-level engagement and an initial list of stakeholders to be engaged can be found using the The Essex Map.

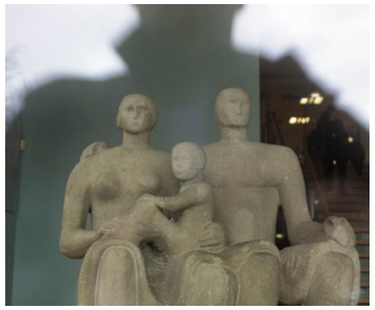
Development should tie into, and extend the rich art culture of Harlows' sculptural town - including engagement with the Harlow Art Trust.

Discover Harlow should be engaged through the development of communities; and can highlight key existing local businesses, organisations, and individuals who can share insight to the needs of Harlow residents.

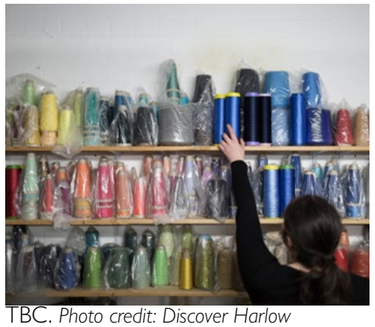
Additionally, documentation, including those found in the HGGT Infrastructure Delivery Plan (IDP), Harlow Infrastructure Delivery Plan, EFDC Infrastructure Delivery Plan, EHDC Infrastructure Delivery Plan; should be referred to and addressed in accordance with the infrastructure needs associated with planned housing and employment growth for each strategic site. Within the documents, these have been prioritised as:

- Critical
- Essential
- Desirable

Developments should therefore highlight what infrastructure will be provided alongside contributions to ensure a holistic approach to



Henry Moore; Harlow Family Group: part of the extensive public art collection in Harlow. *Photo credit: Discover Harlow*



TBC. *Photo credit: Discover Harlow*

Harlow community tree planting day. *Photo credit: Harlow Council*

Harlow hatches used during covid-19 to respond to community needs. TBC.

TBC. *Photo credit: Discover Harlow*

TBC. *Photo credit: Discover Harlow*

TBC. *Photo credit: Discover Harlow*

TBC. *Photo credit: Discover Harlow*

ECONOMIC GROWTH & JOB CREATION

OBJECTIVES & REQUIREMENTS

This theme focuses on outcomes including local residents having comfortable **homes that are affordable to operate**; **thriving local businesses**; decent jobs for local people, including hard to reach groups; long-term employments for skilled local labour. But also, embedding the fabric necessary to **promote long-term growth** and development opportunities and develop new skills, including the incorporation of principles found in the Essex & Hertfordshire Digital Innovation Zone (DIZ); and specifically, in the DIZ Strategy.

Harlow Council have been successful in developing business ___ as highlighted in Harlow's Economic Development Strategy planned for the next 5years.

Economic priorities and Objectives:

Business & Jobs:

Delivering on these priorities will lead to the following outcomes:

- Securing more investment and jobs from key industries such as Life Sciences, MedTech, ICT & digital and Aerospace.
- More jobs and investment by businesses that are part of the supply chain of key industries.
- Continued growth in the business base.
- A healthy business start-up and survival rate.
- Young people and adults gaining entrepreneurial skills and experience to help with future career success and entrepreneurship.

Place:

Delivering on these priorities will lead to -

- An outstanding location and environment for businesses, particularly those where Harlow has existing strengths - including ICT, Advanced Manufacturing and Life Sciences industries.
- Attract and retain more jobs in Harlow.
- A world class Public Health Campus.
- A sufficient, high quality, viable employment land supply to meet future demand and provide a credible offer to prospective inward investors.
- New managed workspace and a mix of premises sizes and styles that cater for existing and future demand.
- A vibrant, inclusive Town Centre that attracts and retains existing and new residents and workers and where expenditure and footfall increases.

People:

SOCIO-ECONOMIC CHECKLIST

QUALITY CHECKLIST

For each response, describe design responses within the Sustainability Statement and/or identify details on your plans (250no. words / question max).

Se.1	Has an **audit of what already exists (social mapping) in the local area** (shops, parks, school, pubs, playspace) been undertaken? What was the outcome and how has this been reflected in proposals? Use of the Essex Map offers a good tool to assist with finding local services, groups, and activities available in the local area.
Se.2	Demonstrate how proposals have been informed by the **key stakeholders (Appendix 4)** to contribute to a more integrated Harlow community. (include in response: the stakeholders you have engaged with, the findings from these sessions, and how you have implemented stakeholder recommendations). Use of the Essex Map offers a good tool to assist with finding local services, groups, and activities available in the local area.
Se.3	Demonstrate how the **socio-economic needs** identified in this section has been implemented in your proposal. (include the ease of accessibility for existing Harlow communities to use new facilities and networks). Use of the Essex Map offers a good tool to assist with finding local services, groups, and activities available in the local area.
Se.4	What **early wins / meanwhile uses** are planned for existing Harlow residents during construction stage of strategic sites? And how are they to be implemented?

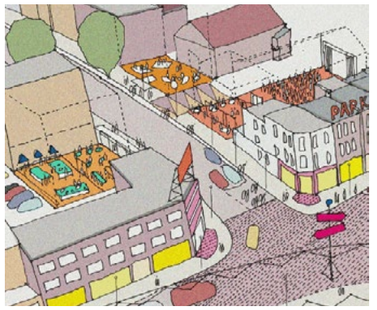
QUALITY CHECKLIST

Se.5	Demonstrate how your proposal responds to, and has been impacted by the list of **key documents (Appendix 5)** highlighted in this section. (include list of documents used and key findings from each)
Se.6	Demonstrate how your proposal physically and socially supports the success of Harlow Town Centre, and network of existing local centres. (identify the existing local centres and their potential relationships with the new centres in this development)
Se.7	Demonstrate how the HGGT Economic Growth Strategy have been incorporated in this scheme through; design stage, construction stage, and post-completion (identify what jobs have been created / will be created through this development)

ADDITIONAL CASE STUDIES

Manor House Development Trust
A community centre managed by MHDT, a resident-led social enterprise, which uses the space to provide art programmes, employment and workshops

The Big Lunch (Eden Project)
The Big Lunch is an annual national event where people organise lunch with their neighbours, at home or in the street.



Social infrastructure: enabling social inclusion
A research inquiry into the role of social infrastructure in enabling social integration and supporting inclusive growth for communities.

Submission:

1. Quality Checklist

(SUBMISSION OF: ENVIRONMENTAL & SOCIO-ECONOMIC PAGES)

2. Sustainability Statement

(ANY ADDITIONAL INFORMATION)

SUBMISSION

1. Alongside each category Quality Checklist, ensure the following have been completed as part of the development application.

	LIST OF SUBMISSION ATTACHMENTS	
	Energy Efficiency & Carbon Reduction (go to page)	
1	Whole life carbon Assessment	☐
	Renewable Energy (go to page)	
2	Energy Assessment	☐
	Sustainable Movement (go to page)	
3	Transport Assessment	☐
	Water Efficiency (go to page)	
4	Sustainable Urban Drainage Strategy	☐
	Green Infrastructure (go to page)	
5	Biodiversity Net Gain Report	☐
	Circular Economy (go to page)	
6	Design Stage Circular Economy Report	☐
	Waste Management (go to page)	
7	Operational Waste Strategy	☐
	Assuring Performance (go to page)	
8	Post-Occupancy Report (to be submitted to LPA at pre-occupation stage)	☐
	Socio-Economic Sustainability (go to page)	
9	List of community consultees / stakeholders engaged throughout design process	☐

NB: all of the above assessment / reports will be expected to submitted to LPA again at post completion / pre-occupation stage. The reason for this is to ensure that buildings and communities are being completed to the specified design standards; ensuring joyful communities and reducing the performance gap prevalent in the industry.

2. In addition to the Quality Checklists, include any additional sustainability strategies or comments which have not been covered by the checklists:

Glossary

[GLOSSARY:
TO BE COMPLETED]

[GLOSSARY:
TO BE COMPLETED]

Appendices

APPENDIX 1: CLIMATE EMERGENCY DECLARATIONS

EPPING FOREST DISTRICT COUNCIL

Declaration: Climate Emergency

Date of Declaration: 19th September 2019

Motion Link: Here

Cllrs: S.Nevile + J.Phillip

Adopted Motion / Commitment:
1. Declare a 'Climate Emergency';

2. Pledge to do everything within the Council's power to make Epping Forest District Council area Carbon Neutral by 2030;

3. Call on Westminster to provide the powers and resources to make the 2030 target possible;

4. Work with other governments (both within the UK and internationally) to determine and implement best practice methods to limit Global Warming to less than 1.5°C;

5. Continue to work with partners across the district and region to deliver this new goal through all relevant strategies and plans;

6. In the special circumstances of this district, resolves to protect the Special Area of Conservation through the Local Plan and every other means;

7. Implement an Air Quality Strategy and bring forward Sustainability Guidance on planning; and

8. Engage with young people when considering the issue of climate change and appoint a 'Youth Ambassador' from the Epping Forest Youth Council."

EAST HERTS DISTRICT COUNCIL

Declaration: Climate Change Action

Date of Declaration: 24th July 2019

Motion Link: Here

Cllrs: Graham McAndrew

Adopted Motion / Commitment:
1. Join with other councils in recognising and declaring formally the necessity to do everything within the authority's power to reduce its impact on the climate and moreover do everything we can in supporting the whole of East Herts District to become carbon neutral by 2030,

2. Develop an ambitious sustainability strategy for reducing the council's own emissions, with an objective that the council becomes carbon neutral by 2030,

3. Work with national and regional partners to ensure that where at all possible we support climate friendly planning and building control regulations and seek where possible to include the very best measures into the Local Plan to minimise any negative impact on the environment,

4. Call on National Government for more powers and resources to make this pledge possible, and ask the council's Leader to write to the Secretary of state for Environment, Food and Rural Affairs to this effect,

5. Continue to work with partners across the district, county and region to deliver this new goal, through all relevant strategies and plans,

6. Take account of climate impacts within existing decision-making processes,

7. Set up an Environmental and Climate Forum, in line with the recommendations from the Task and Finish Group, which were approved by this Council on 5th March, 2019,

8. The Environmental Forum to monitor progress regularly, and to report back,
9. Commit to making available the appropriate training to members and officers to promote carbon neutral policies in order to achieve these aims.

HARLOW DISTRICT COUNCIL

Declaration: Climate Emergency

Date of Declaration: 11th July 2019

Motion Link: Here

Cllrs:

Adopted Motion / Commitment:
1. Reducing the council's net carbon emissions as far as possible and reducing the carbon footprint at a greater rate than it is already committed to do so. Other actions include:

2. Planting 1,000 new trees and hedgerows across the town in the next year.

3. Encouraging the council's trading company HTS (Property & Environment) Ltd to switch over from petrol and diesel vehicles, plant and machinery to electric power vehicles, plant and machinery.

4. Encouraging HTS to source battery technology for its electric vehicles from companies who ensure environmentally friendly lithium mining techniques.

5. Reaffirming the council's commitment to the Garden Town development's principles of sustainable transport.

6. Eliminating the use of single use plastics across all public council buildings by January 2020 ahead of the national implementation date of April 2020.

7. Actively promote schemes to encourage children to walk to school such as the Walking Bus initiative and WOW (walk on Wednesdays).

8. Installing electric car charging points across all council car parks within the next five years where possible.

9. Developing a strategy which looks at the feasibility of:
i) Installing photovoltaic panels on all public council buildings within the next two years where possible; and
ii) New council built houses having a minimal carbon footprint; and
iii) An action plan is created to focus on reducing the impact of day-to-day living on the environment beyond that caused by greenhouse gas emissions.

HERTFORDSHIRE COUNTY COUNCIL

Declaration: Climate Emergency

Date of Declaration: 16th July 2019

Motion Link: Here

Cllrs: David Williams

Adopted Motion / Commitment:
Hertfordshire County Council's sphere of influence is broad with the ability to influence carbon emission reductions, improve air quality, promote energy efficiency, seek more sustainable sources of energy, reduce waste production, promote better land use practices, make links to health and wellbeing and influence procurement practices.

The Council's existing initiatives include an Air Quality Strategy, Energy Strategy, a Climate Change Resilient Communities Strategy, a Pollinator Strategy and the Leading by Example working group.

To fortify and coordinate the Council's existing initiatives, contribute to the national imperatives and provide local leadership:

• This Council agrees the declaration of a "Climate Emergency";

• Calls upon the Leader of the Council to commit to the development and implementation of an overarching Sustainable Hertfordshire Strategy. This will set out the policies, strategies, implementation plans and resourcing requirements to embed the values of sustainability into the Council's service delivery, operations, procurement and supplier management as well as the basis for engaging proactively with the County's many stakeholders, including the 10 Local Planning Authorities, who can contribute to a sustainable Hertfordshire; and

• Seek Cabinet approval of an ambitious Sustainable Hertfordshire Strategy by the end of 2019."

3.6 Reporting requirements

The following section specifies the attributes (assumptions, results, etc.) that need to be disclosed and provides a recommended reporting structure for clarity and transparency. Table 12 can be used for reporting the project specific background information. Table 13 provides an organised template for the carbon results to be reported according to the requirements set out below. The cells shaded in purple indicate the minimum results required to be reported for an assessment.

A full whole life carbon assessment report should contain the following:

1 Details of the commissioning body, assessor and verifier if applicable.

2 Date of assessment completion.

3 A purpose statement declaring the drivers and aims of the assessment.

4 A description of the built asset assessed including its main physical and technical characteristics, e.g. number of storeys, floor area, as well as information on its use.

5 Declaration of the Reference Study Period used in the assessment.

6 A clear statement of the scope and boundaries regarding building parts and project life cycle stages accounted for in the assessment. If restricted scopes are used, justification in line with the aims of the study should be provided.

7 A clear indication of the point in time within the project process the assessment was conducted, e.g. early design stage (RIBA Stage 3), on practical completion, etc.

8 Explicit declaration of all sources of carbon data, material quantities and all relevant technical information and references throughout the assessment.

9 The percentage (%) of material quantities covered for each building element category – see 3.2.2.

10 Clear statement and explanation of all assumptions made and scenarios developed to facilitate the carbon calculations such as transport distances and EoL scenarios, including the percentage of quantities covered per building element category.

11 Itemised carbon results, separately per: 1. Building element group – see 3.1.2; and 2. Life cycle stage module – see 3.1.4.

12 Total carbon results for the cradle-to-grave scope [A] to [C] per building element group; both absolute (in $kgCO_2e$ or appropriate metric multiples thereof) and normalised (in $kgCO_2e$/unit of measurement, e.g. m^2) totals should be reported.

13 Total carbon results for each life stage module; both absolute (in $kgCO_2e$ or appropriate metric multiples thereof) and normalised (in $kgCO_2e$/unit of measurement, e.g. m^2) totals should be reported.

14 Aggregated carbon results for the cradle-to-grave scope [A] to [C] for all building element groups; both absolute (in $kgCO_2e$ or appropriate metric multiples thereof) and normalised (in $kgCO_2e$/unit of measurement e.g. m^2) totals should be reported.

15 Modules [A1–A3] (Product stage) can be reported jointly as a single figure.

16 Carbon sequestration figures should be identified separately, but can be included within the total cradle-to-grave figures [A] to [C].

17 Carbonation figures are recommended to be identified separately where applicable, but can be included within the respective applicable modules [A3]; [B1]; [C3]; [C4].

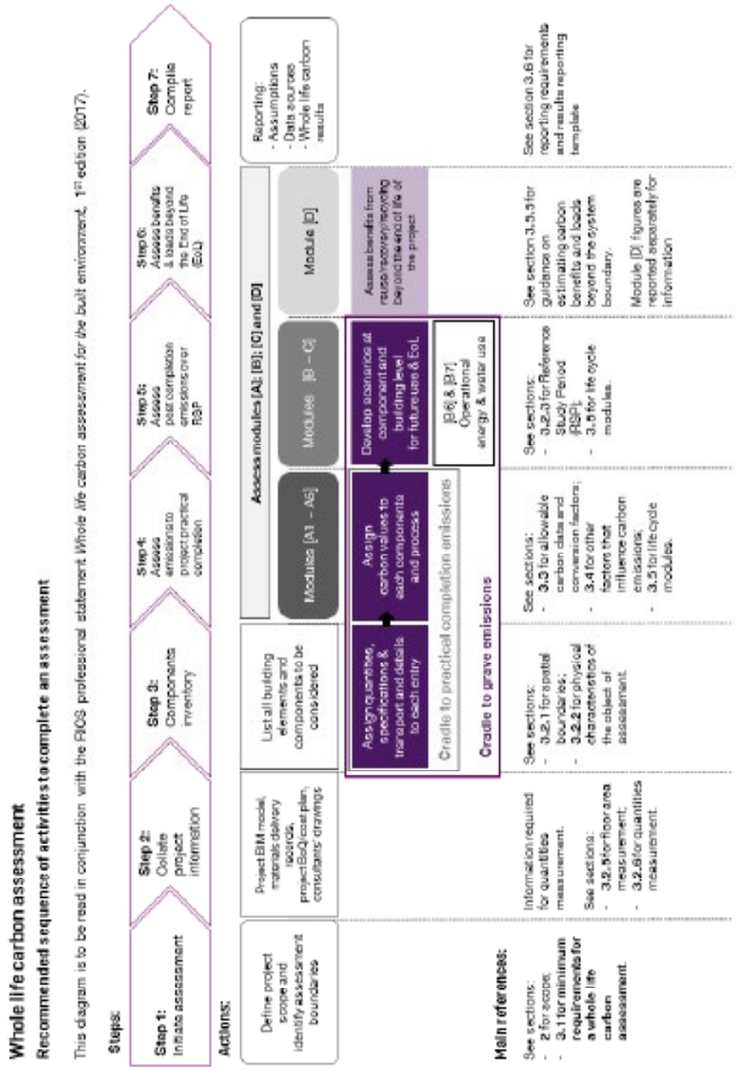
18 The decarbonised figures for modules [B2]; [B3]; [B4]; [B5]; [B6]; [B7] and [D] should be reported separately.

19 Further emissions to be reported separately: 1. Emissions associated with Demolition; 2. Operational emissions for non-building-related systems; 3. Module [D] figures.

The project ID matrix (Table 12) and the results reporting template (Table 13) organise the required items 1–10 and 11–19 respectively in a structured fashion. The minimum results required for submission are highlighted in purple in Table 13.

It is strongly recommended that the outputs of the assessments are entered into the RICS building carbon database to aid the gathering of robust data and subsequent carbon benchmarking for the built environment.

Appendix 1: Whole life carbon assessment flowchart



© Sturgis Carbon Profiling

APPENDIX 2b: WHOLE LIFE CARBON ASSESSMENT | TABLE 12 & TABLE 13

Date of assessment	Date of assessment completion
Verified by	Verifier name and organisation
Project type	New build or refurbishment of existing structure
Assessment objective	Brief assessment purpose statement
Project location	Full address
Date of project completion	Anticipated date of practical completion
Property type	Residential, public/civic, retail, office, infrastructure, etc. State planning use class
Building description	No. of storeys, structural frame, façade type, basement?, brief description of associated external areas and any ancillary structures
Size	NIA, GIA, volume, etc.
Project design life	In years
Assessment scope	Building parts and life stages/modules included
Assessment stage	Design stage at which the assessment has been conducted at
Data sources	List all data sources used in the assessment including building information and carbon data sources
Building elements coverage	See nested table below
Assumptions and scenarios	List all assumptions and scenarios used in the assessment including brief justifications

#	Building parts/element groups	Building elements	Coverage (%)
0	Facilitating works	0.1 Temporary/Enabling works/ Preliminaries	
		0.2 Specialist groundworks	
1	Substructure	1.1 Substructure	
2	Substructure	2.1 Frame 2.2 Upper floors incl. balconies 2.3 Roof 2.4 Stairs and ramps	
	Superstructure	2.5 External Walls 2.6 Windows and External Doors	
	Superstructure	2.7 Internal Walls and Partitions 2.8 Internal Doors	
3	Finishes	3.1 Wall finishes 3.2 Floor finishes 3.3 Ceiling finishes	
4	Fittings, furnishings and equipment (FFGE)	Building-related Non-building-related	
5	Building services / MEP	5.1–5.14 Building-related services	
		Non-building-related	
6	Prefabricated Buildings and Building Units	6.1 Prefabricated Buildings and Building Units	
7	Work to Existing Building	7.1 Minor Demolition and Alteration Works	
8	External works	8.1 Site preparation works 8.2 Roads, Paths, Pavings and Surfacings 8.3 Soft landscaping, Planting and Irrigation Systems 8.4 Fencing, Railings and Walls 8.5 External fixtures 8.6 External drainage 8.7 External Services 8.8 Minor Building Works and Ancillary Buildings	

Table 12: The project ID matrix

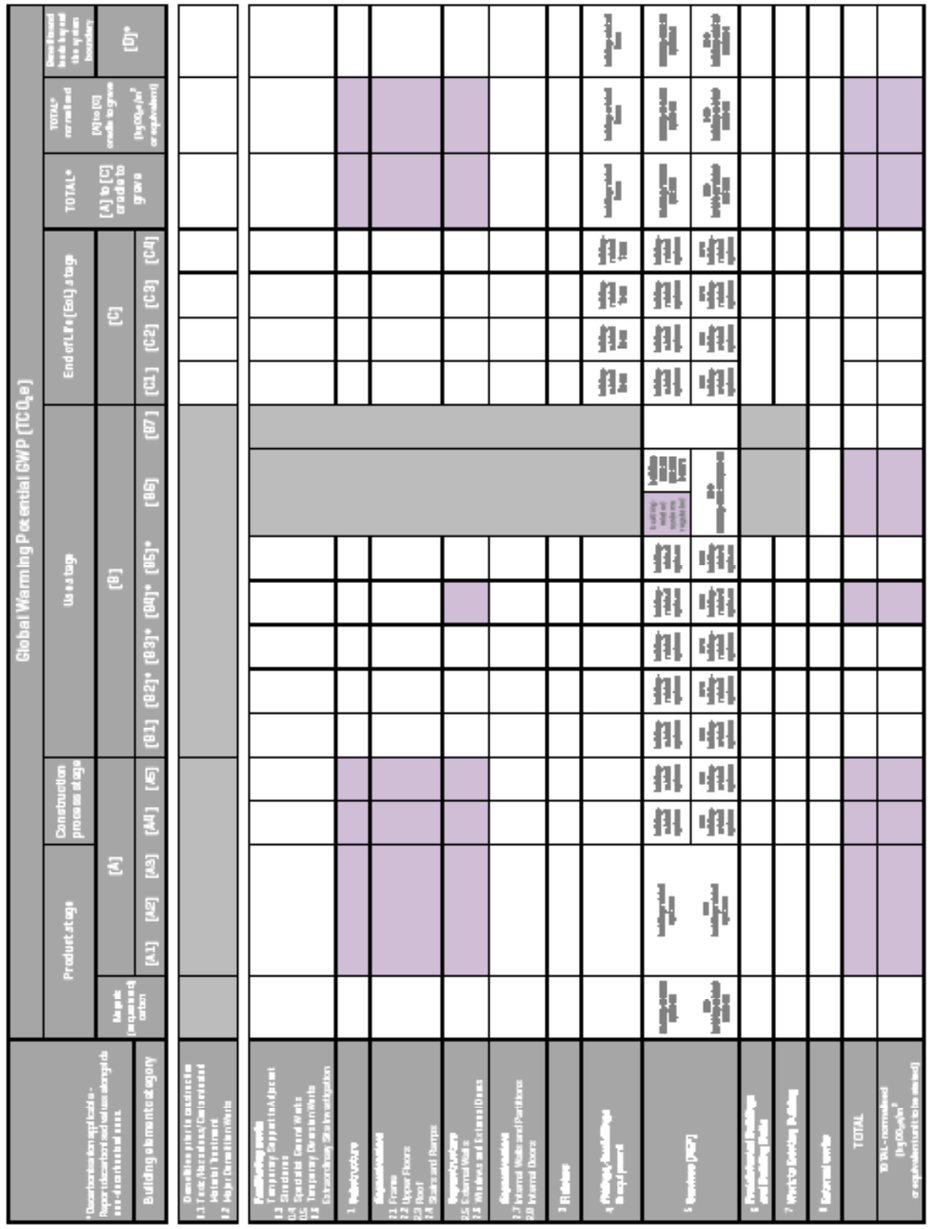


Table 13: Results reporting template 4 Biogenic Carbon Profiling

APPENDIX 3: LETI HEAT DECISION TREE: SEE LETI CLIMATE ENERGY DESIGN GUIDE FOR FULL DETAILS

Heat decision tree

The Heat Decision Tree below highlights the broad range of issues that the heating system selection must address, including such non-carbon issues as avoiding higher energy bills for those least able to pay. Similarly, air quality issues, particularly in urban areas, and countering the increase of future UHI, are likely to preclude combustion processes. Some of these criteria will vary from region to region and hence local planning policy will need to define locally acceptable limits with future trajectories for progressive improvements.

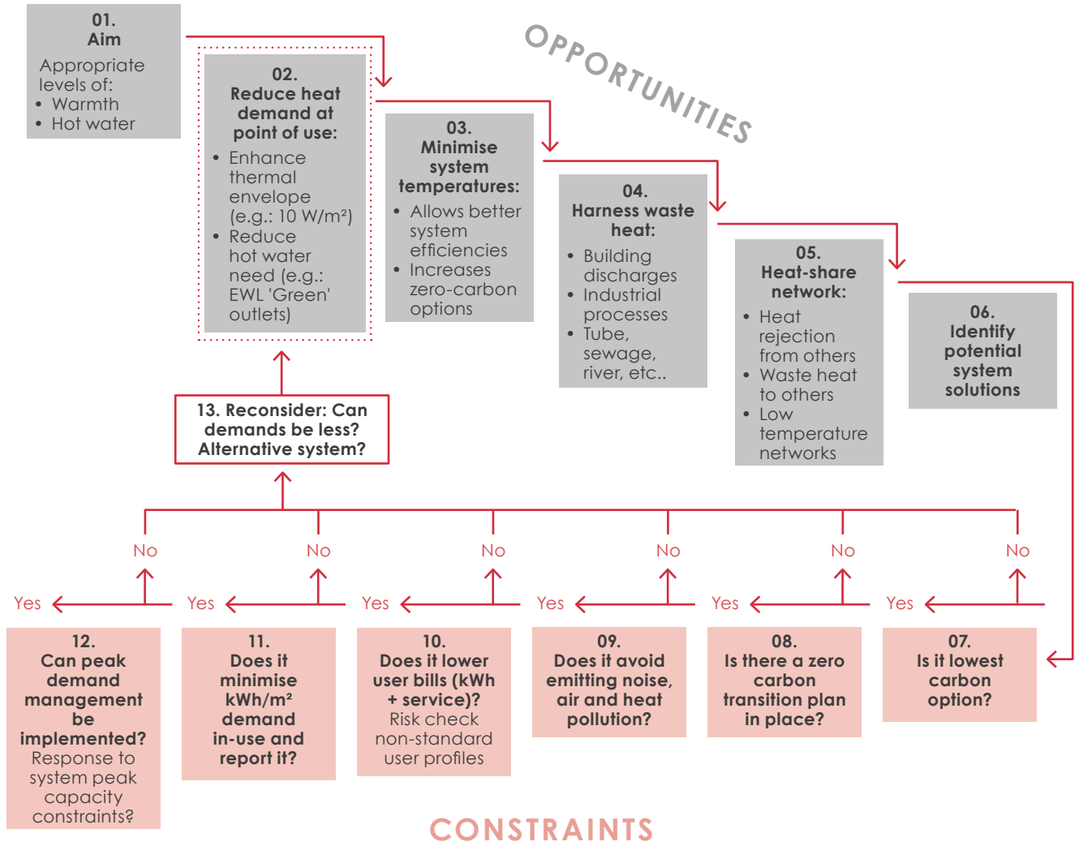


Figure 3.5 - Heat decision tree

Heat system options		Suitability for zero carbon
	Gas boilers / fuel cells	Not zero carbon because of fossil fuel use. Could be zero carbon if fuelled by hydrogen created from renewables.
	CHP leading with gas boiler	Not zero carbon because of fossil fuel use. Could be zero carbon if fuelled by hydrogen created from renewables.
	CHP leading with gas boiler on district heating	Not zero carbon because of fossil fuel use. Could be zero carbon if fuelled by hydrogen created from renewables. Beware of relatively high distribution standing losses when serving low energy buildings.
	ASHP with gas boiler peak loads on district heating	Not zero carbon because of fossil fuel use. Could be zero carbon if fuelled by hydrogen created from renewables. Beware of relatively high distribution standing losses when serving low energy buildings.
	Centralised ASHP on low temperature district heat network with local WSHP upgrade for DHW	Potential for zero carbon once grid decarbonised or if powered by on-site renewables. Beware ASHPs do not operate at their most efficient at high district heating temperatures. District heat network losses reduced if operating at 'ambient' temperature of 18-25°C ideally. Low flow DHW outlets ideally to reduce high temperature demands. Beware lowest COP efficiencies and reduced capacities occur are during coldest weather.
	Exhaust air heat pump (EAHP) with MVHR in each building / dwelling	Potential for zero carbon once grid decarbonised or if powered by on-site renewables. Harnesses only waste heat using 2-stage heat recovery and is dependent on enhanced thermal envelope and low flow DHW outlets.
	Room WSHP units with building centralised ASHP	Potential for zero carbon once grid decarbonised or if powered by on-site renewables. Heat sharing ambient loop water network allows heat recycling within building. Can connect to district heat sharing network so heat rejected from cooling systems is redistributed to heat demand buildings.
	ASHP for DHW	Potential for zero carbon once grid decarbonised or if powered by on-site renewables. Be-ware that COP efficiencies are generally quite poor for generating DHW temperatures. Future CO_2 high pressure refrigerants expected to improve COPs (see Appendix A3.2)
	GSHP per building or on heat share district system	Potential for zero carbon once grid decarbonised or if powered by on-site renewables. District heat network reduced losses if operating at 18-25°C ideally. Better COPs than ASHP in winter, although poorer during summer.
	DX / VRV heat pumps	Potential for zero carbon once grid decarbonised or if powered by on-site renewables. COP efficiencies are generally poor for generating DHW temperatures. Unlikely to be compatible with low global warming potential (GWP) refrigerants. Beware lowest COP efficiencies and lowest capacities during coldest weather.
	Direct electric	Unlikely to be compatible with future renewable grid peak demand restrictions. Likely to increase energy bills significantly. May be suitable as back-up for zero heating buildings and for very low DHW demands.
	Biomass (solid) boilers	Unlikely to be acceptable in urban areas due to fuel emissions. Harvesting and delivery also needs to be zero carbon with comprehensive forestry replenishment.

Figure 3.6 - Heat system options table

Definitions:

DHW	Domestic hot water
CHP	Combined heat and power unit (gas-fired)
ASHP	Air-source heat-pump
WSHP	Water-source heat-pump
COP	Coefficient of Performance of heat-pump
DX	Refrigerant piped between split units (often reverse-cycle)
EAHP	Exhaust-air-source heat-pump
MVHR	Mechanical ventilation heat recovery unit
ZC	Zero carbon

APPENDIX 4: STAKEHOLDER ENGAGEMENT LIST

TEMPLATE:

[HGGT COMMUNICATION STRATEGY]

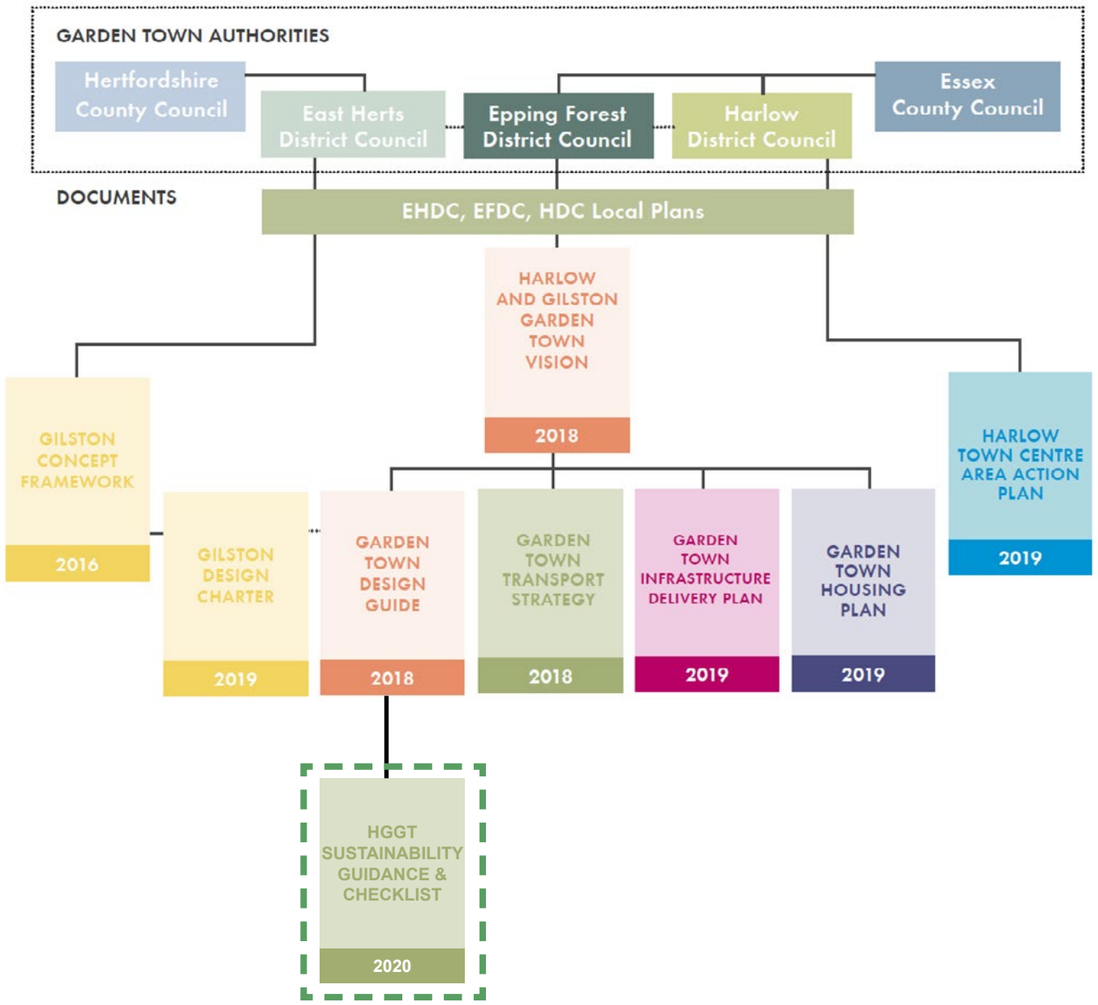
APPENDIX 5: USEFUL ADDITIONAL DOCUMENTATION

GARDEN TOWN PARTNER AUTHORITIES ADDITIONAL DOCUMENTATION

Following local community stakeholder engagement, additional local documentation has been highlighted as useful guides to inform high quality design in the Garden Town. These are listed below.

- Churches (i.e. Frontline Church)
- Harlow Voluntary sector forum
- NHS England Social Prescribing Group
- East Herts Healthy Hubs
- Joint Strategic Needs Assessment (JSNAs)
- Local community health profiles
- Transition Town Handbooks
- United in Kind initiative
- Dementia Action Alliance
- Health & Wellbeing Board
- Research into Ethnic and Culturally Diverse Groups in Harlow (RU)
- WECAN: West Essex Community Action Network

APPENDIX 6: FAMILY OF DOCUMENTS



APPENDIX 7: DRAFT PRE-OCCUPATION PLANNING CONDITION

TEMPLATE: [DRAFT PRE-OCCUPATION CONDITION]

PRE-OCCUPATION CONDITION DRAFT TEXT

Applicants will be expected to demonstrate compliance with all targets they have chosen in submitting this Sustainability Guidance and Checklist.

Satisfaction of meeting these conditions will need to be confirmed by the Partner Authority, prior to the occupation of any new development.

Example Condition Wording:

Submission of evidence-based Sustainability Compliance
Prior to first occupation of each phase of the development, evidence (including post-construction final certification) shall be submitted and approved by the Local Planning Authority, in writing, in accordance with the HGGT Sustainability Checklist and Statement submitted as part of the Planning Approved application. This evidence must be provided as stipulated within the Environmental & Socio-Economic Sections of the Guidance; and include the details relating to all categories including:
Energy Efficiency & Carbon Reduction, Renewable Energy, Sustainable Movement, Water Efficiency, Green Infrastructure, Circular Economy, Pollution, Post Occupancy Evaluation, Health & Wellbeing, Economic Growth & Job Creation, Community Strength & Social Infrastructure.

Reason:
To ensure satisfactory post-completion performance in the interests of resident comfort, in accordance with the guidance contained within the endorsed HGGT Sustainability Guidance & Checklist and relevant Council Local Plan Submission.

APPENDIX 8: POST OCCUPANCY EVALUATION REPORTING

TEMPLATE: [POST-OCCUPANCY]

APPENDIX 9: LOCALLY IDENTIFIED SOCIO-ECONOMIC NEEDS

GARDEN TOWN PARTNER AUTHORITIES ADDITIONAL DOCUMENTATION

Following local community stakeholder engagement, additional local documentation has been highlighted as useful guides to inform high quality design in the Garden Town. These are listed below.

- Locally run cafés and green spaces as existing social infrastructure and assets for local community
- Combined Community / Health hubs
- Enabling Lunch Clubs (i.e. Haley Centre and Acton Centre);
- Enabling opportunities to provide catering for older people
- 'Chatter tables' initiatives for tackling loneliness/ integration
- Cultural Centres for minority communities to hold functions and meetings and socialise.
- Opportunities for additional "Wild" swimming - similar to lake swimming sites near Harlow
- Facilities for youths and the elderly age groups
- Facilities for families and teenage children
- Opportunities for skills development
- Opportunities for new communities to feel empowered to integrate with existing local residents

APPENDIX X: CIRCULAR ECONOMY STATEMENT

TEMPLATE:

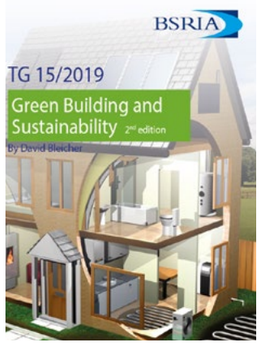
[DESIGN STAGE CIRCULAR ECONOMY STATEMENT]

APPENDIX 10: LIST OF PERFORMANCE STANDARDS ADOPTED

KEY RESOURCES USED TO DEVELOP PERFORMANCE AND QUALITY STANDARDS

This is not a comprehensive list and there are additional documents that were used in the creation of this Guidance.

- **Energiesprong**: Performance requirements: Part L UK vs Energiesprong vs Passivhaus.
- **Zero Carbon Hub**: Closing the Gap between Design & As-built: July 2014
- **Innovate UK**: Building Performance Evaluation Programme: Findings from non-domestic projects | Getting the best from buildings. January 2016

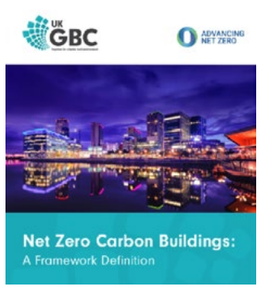


Building Performance Standards

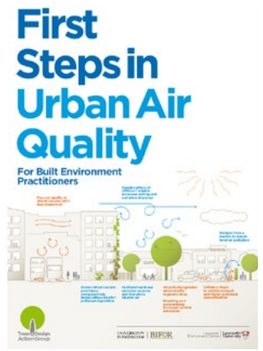
Passivhaus

BREEAM Communities

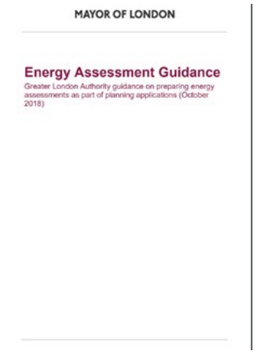
BREEAM HQM



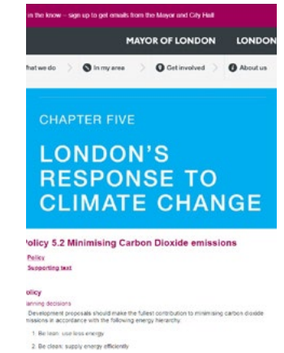
Net Zero Carbon Buildings - UKGBC



First Steps in Urban Air Quality



Guidance on preparing Energy Assessments



London Plan: Energy Hierarchy

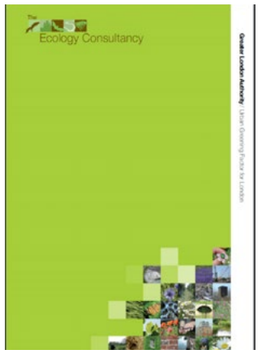
RIBA 2030 Climate Challenge

Future Homes Standard 2020

National Design Guide

London Plan: Be Seen

Transport for New Homes Checklist



Urban Greening Factor (UGF)

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Royal Institution of Chartered Surveyors (RICS)
Sustainable Energy Association (SEA)
Solar Trade Association (STA)