CHAPTER 22: BUILDING A ZERO CARBON HARINGEY



INTRODUCTION

22.01 The UK has a legally binding requirement to become 'net zero carbon' by 2050, which means reducing greenhouse gas emissions by at least 100% compared to 1990 levels, as set out in the Climate Change Act 2008.

22.02 Chapter 14 of the NPPF sets out national policy requirements for meeting the challenge of climate change. Paragraph 161 states that the planning system should support the transition to a low carbon future in a changing climate, "in line with the objectives and provisions of the Climate Change Act 2008".

22.03 Haringey has been at the forefront of climate change policymaking in London. We were one of the first London boroughs to declare a Climate Emergency in March 2019 and have committed to becoming a zero-carbon Council by 2029, and a zero-carbon borough by 2041. To help deliver these objectives we published a Climate Change Action Plan in 2021, which sets out the key actions required to reduce our council, housing, workplace, transport, energy, and community emissions. The New Local Plan is an important policy tool for realising our objectives, given around 40% of UK carbon emissions are linked to the built environment.

22.04 Our Draft Local Plan sets addressing the climate emergency at its heart, within our Placemaking Objective to achieve a 'Sustainable and Resilient Place, strong communities, a regenerating natural environment and on target to be net zero carbon by 2041'. It is a challenge that is tackled throughout all parts of the Local Plan. This section focuses on how we do this through the way we use and develop our buildings.



Policy ZC1: Achieving a Zero Carbon Balance

A. All development should achieve a Zero Carbon Balance. To deliver this, proposals must:

(1) Minimise embodied carbon emissions in accordance with the Embodied Carbon Hierarchy set out in Policy CE2, which includes taking a 'retrofit first approach'.

(2) Minimise waste by applying the Circular Economy Principles set out in Policy CE3.

(3) Achieve Net Zero Operational Carbon by following the Operational Carbon Hierarchy

a. Be Lean - take a 'passive design' approach, prioritising building fabric improvements to deliver high levels of energy efficiency as required by Policy CE4

b. Be Clean - use low & zero carbon infrastructure to heat, cool and power buildings as required by Policy CE5

c. Be Green - maximise on-site renewable energy generation as required by Policy CE6

d. Be Seen - measure, monitor and report the energy performance of proposals as they are planned, built-out and in-use as required by Policy CE7

22.05 This policy contributes to the Haringey Placemaking objectives as follows:

22.05

A FAIR PLACE

Address fuel poverty by delivering homes that require less energy

Require proposals to take opportunities to address social inequities

A HEALTHY & SAFE PLACE

Ensure people are comfortable inside buildings, particularly in the context of a changing climate

A SUSTAINABLE & RESILIENT PLACE

Place greater emphasis on achieve net zero operational carbon on-site, avoiding the costs of having to retrofit new buildings in the future

Introduce policies to minimise embodied carbon and support the circular economy

Supporting Text

Zero Carbon balance

22.06 Zero Carbon Balance is achieved through two key steps:

i. Minimising carbon emissions generated over the whole lifetime of a development, including the carbon generated by making, un-making and using the building ('whole life-cycle carbon emissions'). Designing out waste (also known as taking a 'Circular Economy approach') forms an important part of this process.

ii. Prioritising an energy efficient building fabric ('Be Lean') with a low carbon heat source ('Be Clean') and meet the residual energy demand needed to operate the building entirely through on site renewable energy ('Be Green')

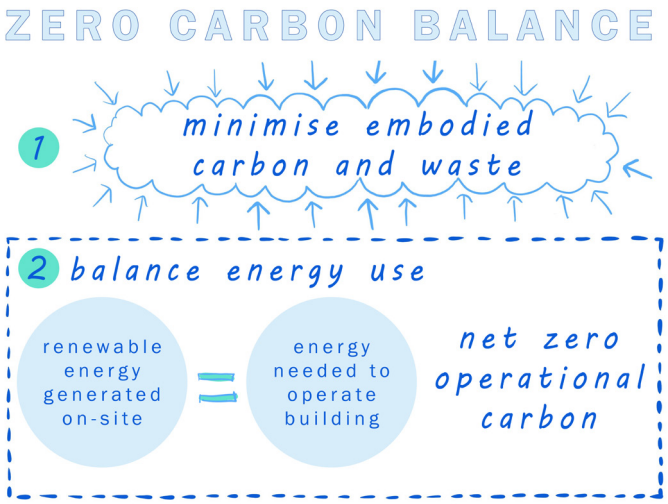


FIGURE 206 | Zero Carbon Balance diagram

22.07 It is not possible to make even ultra-low energy buildings comfortable all-year round without some space heating during colder months, and buildings have other operational needs that require an energy input, for example electricity for lighting or cooking food. The energy needed to operate the building is referred to as the 'energy demand'.

22.08 By making the building fabric as energy efficient as possible the remaining energy demand can be reduced sufficiently such that the demand can be met entirely by power generated from renewable energy sources 'on site' (such as solar photovoltaic panels or PVs). If a building can meet its energy demand entirely through on-site renewable energy sources it has achieved Net Zero Operational Carbon.

22.09 Offsetting emissions is discouraged and should only be used in exceptional cases where it is demonstrated that it is not technically feasible to achieve Net Zero Operational Carbon.

22.10 Development that achieves a Zero Carbon Balance has therefore taken every opportunity to minimise carbon emissions and optimise energy efficiency.

Minimising Embodied Carbon

22.11 Embodied Carbon refers to carbon emissions associated with the making and unmaking of buildings. This includes their manufacture and construction ('upfront embodied carbon'), repair and maintenance ('in-use') and deconstruction, waste processing and disposal ('end-of-life').

22.12 We need to reduce emissions as quickly as possible to avoid global climate tipping points being reached, and minimising upfront embodied carbon will play an increasingly important role in this in the coming years. This is why we are taking a Retrofit First Approach requiring applicants to investigate retrofit opportunities as part of their design process and to, where appropriate, avoid carbon emissions by improving existing buildings rather than demolishing and building new, while still making best use of the land.

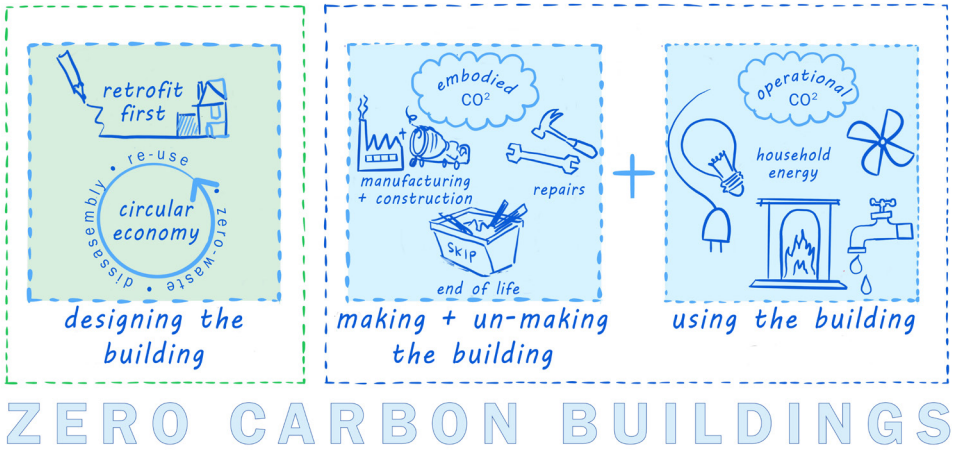


FIGURE 207 | Zero Carbon Buildings diagram

Minimising Waste

22.14 Linked to the concept of minimising embodied carbon is the 'Circular Economy'. A Circular Economy is one where materials

are retained in use at their highest value for as long as possible and are then re-used or recycled, leaving a minimum of residual waste. Reducing waste means less carbon is wasted, for example through emissions generated by manufacturing and transporting materials or through disposing of waste. Applicants should apply a circular economy approach right from the start of the design process. This includes taking a retrofit first approach, but also thinking strategically about the future use of materials in an intelligent way – for example sizing elements to minimise wasted offcuts of sheet material, or through designing fixings and joints that can be easily disassembled in the future so that materials can be reused (e.g. nuts and bolts rather than welding or adhesives). This ensures that the components of the building can have as long a life as possible and makes them more useful as a material resource at the end of the building's life.

Net Zero Operational Carbon

22.15 Operational Carbon refers to carbon emissions produced when a building is in use, for example heating, cooling, or lighting. Net Zero Operational Carbon is achieved where a development balances its operational energy use with on-site renewable energy generation (for example solar panels) or investment in additional off-site renewable energy (without offsetting).

22.16 The capacity for developments to achieve Net Operational Carbon is well established and is a requirement in the London Plan 2021. Our policies expect all development in Haringey to achieve Net Zero Operational Carbon through our Operational Energy Hierarchy. Proposals are also expected to align with the London Plan's 'Be Seen' requirement by measuring, monitoring and reporting on their Net Zero Operational Carbon targets.

22.17 This builds on the framework of the London Plan energy hierarchy, while introducing a new, more effective way of assessing energy efficiency and higher standards for reducing energy and emissions on-site. We see these locally specific policies as necessary to meet our climate ambitions, reducing emissions as quickly as possible and avoiding having to retrofit new buildings at a later date.

Implementation

22.18 Energy Statements are required where proposals meet relevant criteria. They should contain a written summary of the overarching strategy for achieving a Zero Carbon Balance in accordance with our policies. They should be proportionate to the scale of development and supported by the relevant documentation as required by policies CE2 to CE7.



Policy ZC2: Embodied Carbon and Retrofit

A. All development must be designed to maximise Whole Life Cycle carbon savings by minimising embodied carbon in the following order of priority:

Embodied Carbon Hierarchy

(1) Build less – take a 'retrofit-first' approach, exploring retrofit and repair opportunities from the outset of the design process and prioritising the reuse and retrofit of existing buildings, where appropriate, as well as maximising the re-use of existing materials on site.

(2) Build light – design building structures and services to be resource-efficient and lightweight where appropriate, minimising material waste.

(3) Build low-carbon – minimise the environmental impact of materials by specifying low-carbon building products.

B. Proposals will be supported where they successfully demonstrate that embodied carbon will be reduced as far as possible, through a Whole Life Cycle Carbon Assessment (WLCA).

C. As a minimum requirement, major development must limit total embodied carbon to the following targets:

Table 138: Upfront and Embodied Carbon targets (all values in kgCO2e/m2, GIA) (including sequestration)

Type of development	Until 2028: (25% reduction over baseline) ('C' rating)	Until 2031 (40% reduction over baseline) ('B' rating)	2031 onwards: (65% reduction over baseline) ('A' rating)
Residential	Upfront Carbon: <500 Embodied Carbon: <800	Upfront Carbon: <400 Embodied Carbon: <625	Upfront Carbon: <300 Embodied Carbon: <450
Office	Upfront Carbon: <600 Embodied Carbon: <970	Upfront Carbon: <475 Embodied Carbon: <750	Upfront Carbon: <350 Embodied Carbon: <530
Education	Upfront Carbon: <500 Embodied Carbon: <675	Upfront Carbon: <400 Embodied Carbon: <540	Upfront Carbon: <300 Embodied Carbon: <400
Retail	Upfront Carbon: <550 Embodied Carbon: <690	Upfront Carbon: <425 Embodied Carbon: <535	Upfront Carbon: <300 Embodied Carbon: <380
All other non-residential buildings	Upfront Carbon: <600 Embodied Carbon: <970	Upfront Carbon: <475 Embodied Carbon: <750	Upfront Carbon: <350 Embodied Carbon: <530

D. Proposals for development on sites with existing buildings must take a 'retrofit first' approach, evidencing that reuse,

repair and retrofit design options have been considered from the earliest design stage and demonstrating that the reuse and retrofit of existing buildings has been prioritised having regard to the Haringey Placemaking Framework, relevant site allocations, and the need to make best use of land.

E. The Council will support appropriate retrofitting of existing buildings to reduce energy demand and overheating risk.

Supporting text

Embodied carbon

22.19 Embodied Carbon refers to carbon emissions associated with the making and unmaking of buildings. This includes their manufacture and construction ('upfront embodied carbon'), repair and maintenance ('in-use') and deconstruction, waste processing and disposal ('end-of-life').

22.20 As developments are being designed to be more energy efficient, embodied carbon is representing an increasingly larger proportion of the total emissions associated with new development. It is therefore increasingly important for developments to maximise opportunities to reduce embodied carbon.

22.21 Proposals should reduce embodied carbon in building materials by all means available. Typically, the biggest opportunities to reduce the carbon content of building materials are as follows:

i. sourcing materials locally;
ii. re-using existing materials;
iii. using bio-based materials;
iv. using recycled materials; and
v. sustainably sourced materials.

22.22 Each development and each building element will present different opportunities to achieve the greatest reductions in embodied carbon. For example, in one project the primary building structure may represent the biggest opportunity for savings, while in another it could be the building services and ductwork.

22.23 For further guidance regarding low carbon materials, applicants should refer to LETI's Embodied Carbon Primer.

Whole Life Cycle Carbon Assessments

22.24 All development resulting in the creation of 30 or more dwellings or 1,000sqm or more non-residential GIA will be required to undertake a Whole Life Carbon Assessment (WLCA) in line with the GLA's guidance, and to demonstrate that whole life carbon savings have been maximised.

22.25 All development proposing to demolish and rebuild a single dwelling will be required to undertake a Whole Life Carbon Assessment in line with Haringey's Whole Life Carbon Assessment Guidance.

22.26 Any development which is not proposing to demolish and rebuild can still provide a WLCA and is encouraged to consider embodied carbon early in the design process.

22.27 Applicants should also refer to the detailed practical guidance produced by the Royal Institute of Chartered Surveyors (RICS): 'Whole Life Carbon Assessment for the built environment'.

Retrofit First

22.28 Around 80% of our buildings are expected to still exist in 2050. To meet our borough-wide target of net zero carbon by 2041, most of Haringey's buildings need to be retrofitted to improve their energy efficiency. Retrofitting also provides other benefits including improving health outcomes by avoiding cold, damp

and mouldy homes, addressing fuel poverty by reducing energy demands and making our buildings resilient to the extreme weather events that a changing climate brings.

22.29 Paragraph 167 of the NPPF states that in determining planning applications, "local planning authorities should give significant weight to the need to support energy efficiency and low carbon heating improvements to existing buildings, both domestic and non-domestic (including through installation of heat pumps and solar panels where these do not already benefit from permitted development rights)." It further explains that where proposals would affect conservation areas, listed buildings or other relevant designated heritage assets, local planning authorities should also apply the policies set out in conserving the historic environment chapter of the framework.

22.30 Although not all retrofit proposals require planning permission, our policies seek to support appropriate retrofitting where planning permission is required. Where proposals include the full or partial demolition of existing buildings, and their replacement with new buildings, they must evidence that this is justified and that re-use and retrofit design options were fully considered prior to the design of new buildings. Proposals that fail to demonstrate adequate consideration for the retention and retrofit of existing buildings will be resisted. Justifications should reference the Placemaking Framework, any relevant site allocations, and the need to make best use of the land.

22.31 Where energy efficiency retrofit improvements to the building fabric are proposed, applicants should take a whole building approach. This means having a co-ordinated approach to how the building fabric is upgraded, whether that is a home, a series of connected homes in a terrace, or a block of flats. This is important because taking retrofit steps in isolation may have unintended negative consequences. For example, installing wall insulation which is not breathable can cause mould problems in some older buildings, and only installing insulation in one part of the building but not another may also result in damp patches (this is often referred to as 'thermal bridging'). Some proposals may need to take a phased approach to completing retrofit works. For those cases, the proposed phasing of the works should be explained as part of a Retrofit Method Statement, demonstrating how this has been planned to follow a whole building approach and ensure the building remains healthy and fit for purpose throughout its use.

22.32 It is noted that there may sometimes be a need for a phased approach to retrofit works. Where this is the case, the approach should be set out in a Whole Building Retrofit Plan.

Embodied carbon targets

22.33 This policy introduces phased embodied carbon targets for major developments. The 'C' rating targets (up to 2028) are based on current best practice. The targets are informed by industry-led evidence produced by the London Energy Transformation Initiative (LETI) in partnership with the Whole Life Carbon Network (WLCN) and the Institution of Structural Engineers (IStructE), and in consultation with the Chartered Institution of Building Services Engineers (CIBSE), Royal Institute of British Architects (RIBA) and the GLA. The targets increase over the plan period to account for expected improvements in best practice, firstly to a 'B' rating in 2028 (considered to be a robust stretch target at the current time), and then to an 'A' rating in 2031 (considered to be the longer-term design standard).

22.34 Further evidence work is being undertaken to support the embodied carbon targets and ensure they provide an aligned methodology and consistent measures for the development industry. Policies will be adjusted through the plan-making process in response to this work as required.

Implementation

22.35 Major development proposals should summarise how they have minimised embodied carbon and met the relevant targets within an Energy Statement, with detail provided in an appended Whole Life Carbon Assessment. This should calculate carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment, such as RICS Whole Life Carbon Assessment or equivalent, and demonstrate actions taken to maximise whole life-cycle carbon savings. Minor development proposals should summarise in their Energy Statement how they have minimised embodied carbon.



Policy ZC3: Supporting the Circular Economy

A. Proposals must be designed and delivered in accordance with the Circular Economy Principles and will be supported where they are demonstrated to do this

Circular Economy Principles

(1) building in layers – ensuring that different parts of the building are accessible and can be maintained and replaced where necessary

(2) designing out waste – ensuring that waste reduction is planned in from project inception to completion, including consideration of standardised components, modular build, and reuse of secondary products and materials

(3) designing for longevity

(4) designing for adaptability or flexibility

(5) designing for disassembly

(6) using systems, elements or materials that can be reused and recycled

B. Major development proposals must meet or exceed the following targets for reducing material waste:

(1) Construction and demolition waste – 95 per cent reuse/recycle/recovery

(2) Excavation – 95 per cent beneficial use. All inert excavation should be used for beneficial uses.

C. Major development proposals should that use Building Information Monitoring to embed circular economy principles at an early stage.

Supporting text

Supporting the Circular Economy

22.36 Almost half of London's waste comes from construction and demolition activities . Alongside reducing emissions, taking a Circular Economy Approach helps to address other global problems, such as resource scarcity and environmental degradation. It also provides an opportunity to create a more efficient economy with more green economy local jobs in fields like recycling and repairs.

22.37 This policy embeds Circular Economy Principles helping ensure proposals are designed for durability and flexibility, as well as for easy disassembly and reuse of building components to minimise waste during the 'in-use, 'maintenance/refurbishment' and 'end of life' phases of development.

Beneficial use of excavated material

22.38 Beneficial use of excavated material could include its use within the development, as part of habitat creation or land restoration. Proposals should seek to reuse materials on-site or within local projects.

BIM and building material passports

22.39 The UK Government promotes the use of Building Information Modelling (BIM) across public sector construction projects to support better information management, maintenance and performance over a building's whole lifespan (with BIM level 2 required as a minimum). BIM enables more efficient design, construction, and operation processes, which support circular economy principles such as resource efficiency, material reuse, and lifecycle planning. Major development proposals should use BIM to help deliver circular economy objectives.

22.40 Building material passports are digital records that provide detailed information about the composition, origin, and lifecycle potential of construction materials. They support circular economy objectives by enabling reuse, recycling, and responsible sourcing throughout a building's life and at end-of-life. BIM can facilitate the creation and management of material passports by cataloguing all of the materials used in a building during design and construction and maintaining these records throughout the asset's lifecycle. This integration helps ensure transparency, traceability, and informed decision-making for reuse and disassembly.

Implementation

22.41 Adherence to the Circular Economy Principles should be set out in the Energy Statement. For major development this should be set out in full in an appended Circular Economy Statement. The Circular Economy Statement should be prepared in line with the GLA's Circular Economy Statement Guidance.

22.42 Adherence to the targets for major development proposals should be demonstrated in the Circular Economy Statement and referenced in the Whole Life Carbon Assessment (as required).

Policy ZC4: Energy Efficiency

A. Proposals which take a passive design approach and deliver high levels of energy efficiency will be supported.

B. New buildings must comply with the energy efficiency targets set out below as appropriate:

Table 139: Energy efficiency targets for new buildings

NEW RESIDENTIAL		
Type of development	**Space Heating Demand (SHD) (maximum permitted)**	**Energy Use Intensity (EUI) (maximum permitted)**
New Residential Buildings	<15 kWh/m^2_{GIA}/yr	35kWh/m^2_{GIA}/yr
NEW NON-RESIDENTIAL BUILDINGS		
Type of development	**Space Heating Demand (SHD) (maximum permitted)**	**Energy Use Intensity (EUI) (maximum permitted)**
Schools	<15 kWh/m^2_{GIA}/yr	65kWh/m^2_{GIA}/yr
Offices, Retail, Higher Education, Teaching Facilities, GP Surgeries	<15 kWh/m^2_{GIA}/yr	70kWh/m^2_{GIA}/yr
Hotels	<15 kWh/m^2_{GIA}/yr	160kWh/m^2_{GIA}/yr
Student / Keyworker Accommodation / Care Homes	<15 kWh/m^2_{GIA}/yr	35kWh/m^2_{GIA}/yr
All Other Non-Residential New Buildings, including Warehouses and Industrial Buildings	<15 kWh/m^2_{GIA}/yr	35kWh/m^2_{GIA}/yr

C. Major development proposals for partially or fully retained residential buildings or buildings being converted to residential use will be supported where they meet the minimum targets below.

Table 140: Retrofit energy efficiency targets

PARTIALLY OR FULLY RETAINED RESIDENTIAL BULIDINGS (RETROFIT)		
Energy Demand Policy Target	**Minimum Required**	**Exemplar**
Space Heating Demand (SHD)	<50 kWh/m^2_{GIA}/yr (maximum permitted)	40kWh/m^2_{GIA}/yr
Energy Use Intensity (EUI)	<50 kWh/m^2_{GIA}/yr (maximum permitted)	25kWh/m^2_{GIA}/yr

D. Where the nature of an existing building permits an ultra-low energy retrofit approach then applicants should seek to meet the exemplar policy target.

E. Highly constrained retrofit of partially or fully retained existing buildings may comply with the standards above with an additional Energy Use Intensity allowance of 10 kWh/m2/year, where it is clearly demonstrated that constraints prevent the minimum target from being met.

F. Proposals are encouraged which improve the energy performance of buildings which are, or are within, designated and non-designated heritage assets. These should have appropriate regard to the heritage asset's significance including any contribution made by their setting.

Supporting text

Operational Carbon Hierarchy – 'Be Lean'

22.43 This policy embeds the first part of the Operational Carbon Hierarchy – 'Be Lean' – which requires that proposals are based on a 'passive design' approach, prioritising building fabric improvements to deliver high levels of energy efficiency. Sometimes referred to as a "fabric first" approach, passive design prioritises a high-quality, energy-efficient building fabric, which promotes comfortable and healthy indoor conditions while protecting buildings from weather conditions and other climate change-related impacts. Under our Operational Carbon Hierarchy, it is important that we first seek to minimise energy demand by designing our buildings to be energy efficient, before considering how we heat and power our homes.

22.44 Taking a 'passive design approach' means following the same methodology as the Passivhaus Standard, an internationally recognised standard in energy efficient building design developed by the Passivhaus Institute in Germany. Homes built to this standard reduce the requirement for space heating and cooling by up to 75% compared to standard practice for UK new-build development, whilst also creating excellent indoor comfort levels.

22.45 Basic design decisions such as massing, orientation and window size are fundamental to achieving the required levels of energy efficiency. Unlike other energy standards, therefore, passive design principles must be embedded from the earliest stages of the design process.

22.46 Taking a 'passive design approach' also aligns with the first step of the Mayor's Energy Hierarchy which requires proposals to prioritise reducing energy demand by improving the energy-efficiency of the building fabric (Be Lean).

22.47 Airtightness is an essential element of passive, low energy building design. It is achieved by designing out uncontrolled ventilation (commonly referred to as 'draughts'), by sealing the external envelope of the building. Airtight buildings still have opening windows – it simply means that unplanned air leakage is avoided, keeping building occupants comfortable and saving on energy bills through efficient design.

22.48 To make airtightness as cost effective and easy to implement as possible, designers should plan a strategy and prepare a method statement, including marked up plans and consideration of appropriate phasing for sealing and testing the building during construction. Proposals should allow for a preliminary air tightness test at an appropriate moment in the construction programme, to avoid abortive work stripping back to the airtightness layer if the test is left until completion.

Energy targets

22.49 In 2023, on behalf of 18 partner London boroughs, Haringey led and managed the delivery of a 'Delivering Net Zero Carbon' evidence study which tested which planning policy targets could best support the delivery of Net Zero Carbon new buildings. The study was informed by extensive energy modelling and found that the most effective way to deliver Net Zero Carbon buildings is to set policy requirements for Space Heating Demand (the amount of heat energy needed to heat a building over a year (per sqm)) and Energy Use Intensity (the amount of total energy needed to run a building over a year (per sqm)), aligning with the Passivhaus Standard.

22.50 By meeting these targets, proposals will make the most of the carbon savings available through energy efficiency improvements and will support the delivery of more energy efficient buildings, avoiding the 'performance gap'. An additional

benefit of introducing these metrics is that they are easier to measure and monitor as the predicted energy use of the building is expressed in kilowatt hours and can therefore be easily compared against household energy bills. Taking this approach means that we can deliver the Be Lean and Be Seen objectives in the London Plan more effectively and align with the recommendations of the Climate Change Committee.

22.51 Separate energy efficiency targets for Space Heating Demand and Energy Use Intensity have been set for residential retrofit. These targets are not as high as the new build targets given the technical challenges associated with retrofitting and in recognition of the need to encourage a retrofit approach and focus on reducing upfront embodied carbon. Residential retrofit proposals are encouraged to achieve the Association for Environment Conscious Building (AECB) Retrofit Standard or equivalent.

22.52 Major developments for non-residential uses are expected to achieve a BREEAM standard of 'Excellent', or an equivalent, industry-recognised, assured performance standard.

Energy improvements to heritage assets

22.53 Adapting heritage assets to the impacts of our changing climate will safeguard their continued use, protect building occupant health and promote the Circular Economy principle of building for the long-term. Proposals for energy improvements to heritage assets should take a sensitive and holistic approach to the design and specification of the retrofit. This will help to reduce impacts on the significance of the asset by inappropriate interventions. Works should always be undertaken based on an understanding of the building's historic evolution and construction (where these matters relate to the heritage significance of the asset), architectural and historic significance, and demonstration of the building's environmental performance.

22.54 Historic buildings require a whole-building approach, often involving the specification of natural building materials to allow for moisture movement in traditional buildings and prevent damp. All proposals for energy improvements to heritage assets must have regard to Historic England's guidance for Retrofit and Energy Efficiency in Historic Buildings (2018). Proposals to modify existing historic windows should have regard to Historic England's technical guidance on Modifying Historic Windows as Part of Retrofitting Energy-Saving Measures.

22.55 Proposals for energy improvements to heritage assets which seek to undo the damage caused by previous inappropriate interventions will be supported.

Implementation

22.56 Adherence to a passive design approach should be set out in the Energy Statement.

22.57 Where energy targets apply to a proposal, the Energy Statement should set out Energy Use Calculations derived from a Passive House Planning Package or equivalent

Policy ZC5: Low and Zero Carbon Heating Infrastructure

A. Proposals which minimise carbon emissions associated with heating buildings will be supported.

B. Having regard to the proposed solutions available for the site, proposals must prioritise low carbon heating measures in accordance with the Low Carbon Heat Hierarchy, which sets a hierarchy of highest priority measures (1) to lowest priority measures (5),

Haringey Low Carbon Heat Hierarchy

(1) High grade waste heat (e.g. from Energy Recovery Facilities (ERF) including Decentralised Energy Networks (DENs) or supplied by energy industry)

(2) Secondary waste heat (e.g. from underground ventilation shafts, data centres, swimming pools, leisure centres, etc)

(3) Ambient heat - This should be prioritised in the following order of efficiency: Water Source Heat Pumps (WSHP), Ground Source Heat Pumps (GSHP) and Air Source Heat Pumps (AHSP), solar thermal (with or without heat pump)

(4) Gas-fired CHP – This will only be supported in strategic energy centres where there is a clear long-term plan for decarbonising the network

(5) Larger communal boilers – These will only be supported in strategic energy centres or as an interim solution until connection to a Decentralised Energy Network (DEN) becomes available

C Individual gas boilers will not be permitted in new development in Haringey.

D. Ultra-low NOx communal gas boilers will only be permitted as an interim heating solution for developments that are due to connect to a nearby DEN.

E. Proposals which prioritise and contribute to the provision and use of district heating and cooling networks will be supported.

F. All major development located within 500 metres of a DEN 'connection zone' should be designed for connection to a DEN.

G. All minor new-build development located within 25 metres of a DEN 'connection zone' should be designed for connection to a DEN.

H. Available heat loads on adjacent sites should be used where viable.

I. Development which includes significant sources of waste heat should investigate opportunities to export the heat to neighbouring sites via a DEN and will be expected to implement viable options. Applicants should engage with the Council and local energy service providers to inform decision making.

J. Developments with large communal energy centres should review opportunities to expand capacity and supply energy to neighbouring existing and future planned developments beyond the site boundary. Applicants should engage with the Council and local energy service providers to inform decision making.

K. Where site-wide communal and district heating systems are operational, the Council will require heat and energy service providers to enter into customer charters with domestic and micro-business customers, ahead of central government introducing regulation to protect customers on heat networks.

L. Use of resistive electric heating including storage heaters will not be permitted as the main heat source for dwellings.

M. New and additional low carbon heating sources will be resisted

where there is an existing alternative low carbon heat source which could provide the necessary heat demands to the building occupant.

N. Proposals for Air Source Heat Pumps should be appropriately sized and located, taking into account measures to minimise heating and cooling demand and local environmental impacts.

Supporting text

Operational Carbon Hierarchy – 'Be Clean'

22.58 This policy embeds the second part of the Operational Carbon Hierarchy – 'Be Clean'. Once demand for energy has been minimised, all planning applications must demonstrate how they will use local zero and low carbon energy resources to supply energy efficiently and cleanly. Development proposals must prioritise zero and low carbon heating measures in accordance with Haringey's Low Carbon Heat Hierarchy. The Council will not support the use of fossil fuels for heating, except in the exceptional or interim circumstances outlined in the hierarchy.

22.59 Decentralised energy is supported by both national and regional policy as a means of achieving net zero carbon emissions by 2050. Heat network zoning is a key national policy, considered to form a crucial part of how the UK will reach its net-zero targets as a cost-effective way to decarbonise heating at a fair price to consumers. District Energy Networks (DENs) are uniquely able to unlock larger scale renewable and recovered heat sources such as waste heat from industry, heat from rivers and from transport infrastructure.

22.60 The London Plan states that developments should connect to existing heat networks wherever feasible. The Mayor has identified Heat Network Priority Areas, which can be found on the London Plan Heat Map website. Almost all of Haringey falls within the Mayor's Heat Network Priority Area and the Council is supporting the roll out of heat networks in the borough.

22.61 There is considerable opportunity for Haringey to generate its own energy, reducing the borough's reliance on the national grid which is yet to decarbonise. Over half of the overall opportunity for decentralised energy in London is in medium and large-scale heat networks

22.62 For both new-build and retrofit scenarios, fabric efficiency measures should be prioritised first so that heat pumps can run efficiently, including where they are retrofitted into existing wet heating systems. Heat pumps do not run efficiently in poorly insulated buildings, resulting in expensive heating bills.

22.63 Evidence should be provided that the system output is sufficient for the demand. This will minimise the environmental impact of proposals by reducing peak demand and the electricity required to run the heat pumps, thereby lowering the running costs, reducing electricity demand and minimising pressure on the local power grid, as well as minimising carbon emissions. Improving the thermal performance of the building fabric will also help to mitigate visual, ambient and noise impacts on adjacent sites caused by oversized heat pump systems.

22.64 Individual Air Source Heat Pumps should meet MCS EN12831 standards or equivalent.

22.65 Where a significant cooling load is present, the heat hierarchy may be adjusted where developers can show an overall net benefit from combining heating and cooling systems (e.g. via absorption chillers, variable refrigerant flow (VRF), ambient loop, etc.).

Implementation

22.66 Adherence to the Haringey Low Carbon Heat Hierarchy and the minimisation of related carbon emissions should be set out in the Energy Statement.

22.67 Evidence of the designing in of potential DEN connectivity should be set out in the Energy Statement.

Policy ZC6: Renewable Energy: On site, Off-site and Offsetting

A. In meeting energy needs for operating buildings, proposals should maximise the use of on-site renewable energy including by producing, storing and using renewable energy on-site.

B. Proposals which meet and/or exceed the Energy Use Intensity of the development with on-site renewable energy generation to achieve net zero operational carbon will be supported.

C. For new buildings, the minimum amount of renewable energy generated in a year should be:

(1) at least 80 kWh/m2(building footprint) per annum for all building types;

(2) at least 120 kWh/m2(building footprint) per annum for industrial buildings;

D. In exceptional circumstances, where , renewable energy generation has been maximised, and it is clearly demonstrated that the Energy Use Intensity of the development cannot be fully balanced by renewable energy generated on site, proposals should offset the shortfall by:

(1) delivering an off-site reduction in emissions within the borough. In this case, a proposal must be identified where delivery is certain and subject to agreement with the Council; or (only if this is not feasible or viable)

(2) through a cash-in-lieu contribution to Haringey's Energy Offset Fund.

E. Proposals that have a significant negative impact on existing renewable energy installations on adjacent sites (e.g. solar, wind) will be resisted.

F. Proposals for community renewable energy projects will be supported.

G. Solar panels will be supported in Conservation Areas except where there is guidance in an adopted Conservation Area Appraisal and Management Plan to indicate that this would be inappropriate or the proposal is otherwise inappropriate having regard to the special character and appearance of the conservation area.

Supporting text

Operational Carbon Hierarchy – 'Be Green'

22.68 This policy embeds the third part of the Operational Carbon Hierarchy – 'Be Green'. Once demand for energy has been minimised, all planning applications must demonstrate how they will use local zero and low carbon energy resources to supply energy efficiently and cleanly. Achieving a zero carbon balance requires the residual energy demand needed to operate a building to be met entirely through on site renewable energy ('Be Green')

22.69 It is not possible to make even ultra-low energy buildings comfortable all-year round without some space heating during colder months, and buildings have other operational needs that require an energy input, for example electricity for lighting or cooking food. The energy needed to operate the building is referred to as the 'energy demand'.

22.70 By making the building fabric as energy efficient as possible the remaining energy demand can be reduced sufficiently such that the demand can be met entirely by power generated from renewable energy sources 'on site' (such as solar photovoltaic panels or PVs). If a building can meet its energy demand entirely through on-site renewable energy sources it has achieved Net Zero Operational Carbon.

Offsetting

22.71 Offsetting emissions is discouraged and should only be used in exceptional cases where it is demonstrated that it is not technically feasible to achieve Net Zero Operational Carbon via on-site or off-site measures.

22.72 In exceptional circumstances, s proposals may need to pay a Renewable Energy Offset Charge where cash-in-lieu contributions are used to offset the shortfall between the amount of renewable energy generated on site and the EUI of the development (both expressed in kWh/sqm/GIA).

22.73 Previously Haringey's carbon offset price was measured per tonne of CO2, and determined by a price set by the GLA. Haringey's new net zero operational carbon policy targets are measured in kilowatt hours (kWh), rather than carbon emissions. Therefore, Renewable Energy Offset Charges will supersede the previous 'carbon offset' approach.

22.74 Where applicants make a cash-in-lieu contribution, this will be calculated by identifying the shortfall between the Energy Use Intensity (EUI) of the development and the amount of renewable energy generated on site, as follows:

22.75 Energy Use Intensity (EUI) – On-site Renewable Energy Generation (OREG) = Renewable Energy Offset Shortfall (REOS)

22.76 Scenario 1 – Haringey's Solar Energy Offset Rate: The development achieves the minimum requirement for Space Heating Demand (SHD) and Energy Use Intensity (EUI) and has maximised on-site renewable energy generation. In this scenario, the offset price is based on the indicative cost of funding solar photovoltaic panels (PVs) elsewhere in the borough:

22.77 Haringey's Solar Energy Offset Rate ('Tier 1' offset rate) applies and the total price is calculated over a 30-year period as follows: REOS x Tier 1 offset rate x 30

22.78 Scenario 2 – Haringey's Retrofit Energy Offset Rate: The development does not achieve the minimum requirement for Space Heating Demand (SHD) and has maximised on-site renewable energy generation. In this scenario the building fabric could require retrofitting in future, therefore a different offset rate is applied:

22.79 Haringey's Retrofit Energy Offset Rate ('Tier 2' offset rate) applies and the total price is calculated as follows: REOS x Tier 2 offset rate x £42

22.80 At the current time, evidence suggests a 'Tier 1' offset rate of £1.32 per KWh/yr for developments that comply with both EUI and Space Heating Demand policy targets, to reflect the cost of installation and management of solar PV installation offset measures. A higher 'Tier 2' rate of £42 per KWh/yr is applied for developments that are only able to comply with one of the two policy targets and have demonstrated that they have maximised all opportunities to improve the energy efficiency of the building design. This higher rate to reflects the construction cost of energy retrofit measures to the Council.

22.81 Construction costs will typically vary over the lifetime of a Local Plan, therefore the Council will review and update the energy offset rates and publish them on Haringey's website to reflect the latest cost-related evidence. Applicants must refer to the Council's latest guidance for energy offset rates which will supersede the rates stated above.

Implementation

22.82 It should be set out in an Energy Statement the level of on-site renewable energy proposed for supply together with information about how on-site renewable energy opportunities have been maximised

Policy ZC7: Assuring Energy Performance

A. Major developments and minor developments creating new residential and/or commercial units should be supported by an Energy Statement detailing how the proposal will deliver a Zero Carbon Balance in accordance with Policy CE1 and should also contain relevant appendices as required for the implementation of Policies CE2 to CE6.

B. For major developments and minor developments creating new residential and/or commercial units the Energy Statement should contain Energy Use Calculations using a Passive House Planning Package model or equivalent as well as a method statement and marked up drawings.

C. For major developments only the following should be appended to the Energy Statement and referred to within the statement as relevant:

(1) Whole Life Carbon Assessment
(2) Circular Economy Statement
(3) Overheating Risk Assessment

D. For major developments and minor developments creating new residential and/or commercial units an assured performance standard such as Passivhaus or BREEAM must be used to demonstrate that operational energy performance targets will be achieved on site. All other types of development are encouraged to use an assured performance standard, as appropriate.

E. All proposals involving retrofit of existing buildings must submit a Retrofit Method Statement.

F. Major development proposals should disclose to the Council the anticipated energy demand at pre-application and planning application stage and the actual energy demand at pre-occupation stage.

Supporting text

Operational Carbon Hierarchy – 'Be Seen'

22.83 This policy formalises the Council's requirements for developments to be supported by Energy Statements and associated documentation, sets clear expectations about their content, and details how energy performance should be assured consistent with the fourth part of the Operational Carbon Hierarchy – 'Be Seen'. The final part of the hierarchy is based on the principle that to truly achieve net-zero-carbon buildings we need to have a better understanding of their actual operational energy performance and work towards bridging the 'performance gap' between design theory and actual energy use.

Energy Statements

22.84 Energy Statements are the key mechanism for applicants and developers to demonstrate compliance that the Local Plan's Climate Emergency & Buildings policies.

22.85 The harmful impacts of climate change often fall hardest on our most vulnerable communities. By moving to a zero carbon borough we can help mitigate these effects, and proactively address inequalities and improve health and wellbeing. For example, our policies will help to create warmer, more comfortable living and working environments that benefit health, address fuel poverty by requiring more energy efficient homes, and will avoid emissions and air pollution.

22.86 To ensure we are proactive in maximising these benefits, Energy Statements should , where appropriate, identify where opportunities to improve health and wellbeing and address social inequities have been identified and pursued. This includes:

→ improving the level of thermal comfort and reducing energy costs for vulnerable communities, such as low-income groups and older people.

- engaging with local communities to ensure the development addresses their needs.
- supporting local job creation, education and skills training in sustainable construction

Assured performance standards

22.87 It is important that operational energy targets will be achieved on site therefore the policy sets requirements for an assured performance standard to be used such as Passivhaus or BREEAM.

22.88 Our current adopted methodology for assessing what is 'zero carbon' uses the measures set out in the London Plan. These are based on the extent to which a proposed new building is an improvement over the minimum standards for a 'notional building' under Part L of the Building Regulations. It is widely accepted that there is usually a significant difference between predicted and actual energy performance when using the Part L methodology to calculate performance – this is often referred to as the 'performance gap'. There are several reasons for this 'performance gap'. The approach does not sufficiently encourage or reward more energy efficient buildings, tends to over-estimate carbon savings, relies more on offsetting, and does not address unregulated emissions generated by equipment such as fridges, washing machines, computers etc. which can represent up to 50% of a building's operational emissions.

22.89 The Passivhaus Standard is an internationally recognised energy performance standard developed by the Passivhaus Institute in Germany. Passivhaus homes reduce the requirement for space heating and cooling by up to 75% compared to standard practice for UK new build, whilst also creating excellent indoor comfort levels. They are built and designed with meticulous attention to detail and are independently certified through an exacting quality assurance process. Basic design decisions such as massing, orientation and window size are fundamental to achieving the required levels of energy efficiency. Unlike other energy standards, therefore, Passivhaus must be embedded from the earliest stages of the design process.

22.90 Major developments must disclose to the Council the anticipated energy demand at pre-application and planning application stage and the Council will condition related planning permissions to require that actual energy performance is reported at pre-occupation stage.