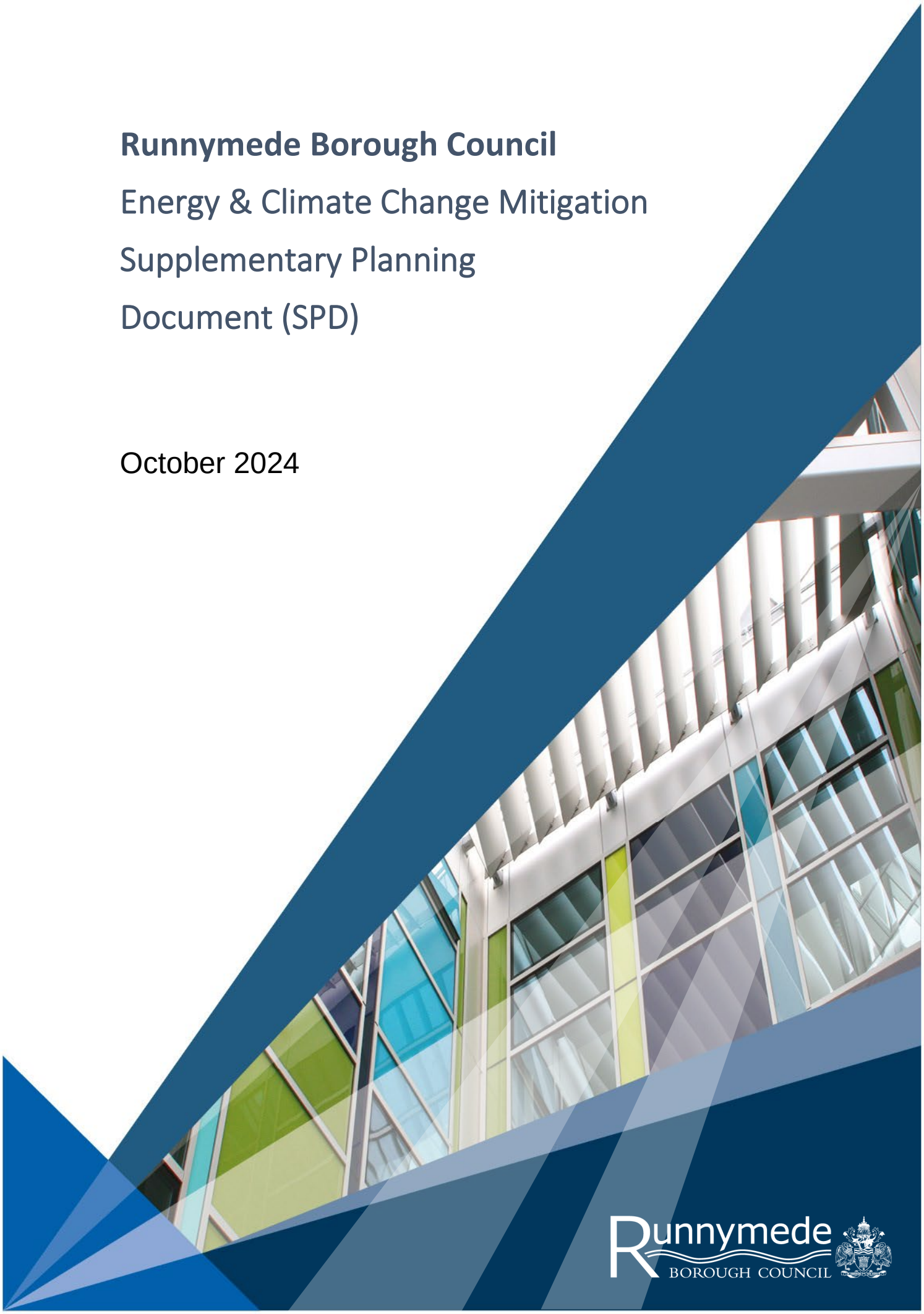
Runnymede Borough Council

Energy & Climate Change Mitigation Supplementary Planning Document (SPD)

October 2024



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Version Control

Version	Date	Purpose
1.0	01/05/2023	Eary draft guidance for DM Officer feedback.
1.1	15/05/2023	Appropriate amendments made.
1.2	24/02/2024	Converted to SPD upon adoption of Climate Change Action Plan for further pre-consultation feedback.
1.3	20/04/2024	Appropriate amendments made to reflect senior officer feedback – draft for public consultation for consideration by Planning Committee.
1.4	05/08/2024	Amendments made to reflect comments at Regulation 12 consultation stage.

Contents

Executive Summary

This Energy & Climate Change Mitigation Supplementary Planning Document (SPD) identifies the energy and carbon emissions reduction policy requirements of the adopted Runnymede 2030 Local Plan ('the Local Plan') and provides clarity for both applicants and decision-makers on how the requirements can be achieved and evidenced, and preferably exceeded wherever possible.

The SPD will help ensure that energy and carbon emissions reduction remains an integral part of a development's design and evolution, to bring about effective climate change mitigation.

In recognition that it will take time, through a Local Plan Review, to revise and strengthen the Council's climate change planning policies to meet net zero carbon objectives, the SPD also identifies 'best practice' approaches which go beyond the minimum requirements set by the existing Local Plan. Proposals which go beyond the minimum policy requirements are strongly encouraged to ensure new buildings are not 'locked in' which will require costly retrofitting in the future. Full details of the Council's aspirations for new and retrofit net zero housing development are provided in the Council's Net Zero Carbon Toolkit (February 2024).

The following table summarises the policy requirements and best practice recommendations for both residential and non-residential development, illustrating the key measures for reducing energy use and carbon emissions and subsequently mitigating new developments' contribution to climate change.

Summary of Key Energy Considerations	**2030 Local Plan Policy reference (and criterion)**
Ensure designs are capable of meeting, at a minimum, energy performance standards in Building Regulations. All developments are encouraged to exceed minimum standards (see Section 2).	Policy SD8
Major development proposals are required (and non-major development proposals are encouraged) to apply the energy hierarchy and adopt a fabric-first approach (see Sections 4 & 5).	Policy SD8
Maximise passive design measures such as building form, orientation, passive solar design, natural ventilation, increased insulation, and air tightness (see Section 5).	Policy SD7(c) and Policy SD8
Apply the cooling hierarchy to minimise overheating which prioritises passive design measures and shading strategies over energy-intensive air conditioning systems (see Section 5).	Policy SD7(c)
All new buildings should aim to use low carbon heat for heating and hot water (see Sections 6 & 7).	Policy SD8
Large-scale major development proposals[1] are required to assess feasibility of connecting to existing or providing new decentralised energy networks. Smaller-scale major development proposals are also encouraged to assess feasibility when applying the energy hierarchy (see Section 6).	Policy SD8

[1] Development proposing 10,000sqm of net additional floorspace or more.

Major development proposals are required (and non-major development proposals are encouraged where feasible) to supply a minimum of 10% of total energy needs from renewable / low carbon technologies (see Section 7).	Policy SD8
Consider opportunities and constraints associated with stand-alone sustainable energy generation (see Section 7).	Policy SD8
Where planning permission is required, energy efficiency and low carbon heating improvements to existing buildings and extensions thereof will be encouraged, with climate change benefits being balanced against any adverse impacts to local amenity or to the built, natural and historic environments where these cannot be overcome (see Section 9).	Policy SD8 Policies EE1-EE8

1. Introduction

Purpose and Objectives

1.1 A supplementary planning document (SPD) is a document which contains additional detail on how the Council will interpret and apply specific policies in its Local Plan. An SPD cannot include any new policies that do not currently form part of the Local Plan, and an SPD also does not form part of the Local Plan. However, SPDs are a material consideration in planning decisions and decision-makers use them to help determine planning applications.

1.2 The Council's Climate Change Strategy and Climate Change Action Plan both clearly identify the role that the planning system can play in tackling the climate emergency in relation to both mitigation of and adaptation to climate change. Work has begun on a revised Local Plan to strengthen local climate-related planning policy requirements, but in the interim, this guidance has been prepared to ensure that existing, adopted planning policies are applied to the best of their effect in tackling the climate emergency and bringing about climate change objectives of the adopted Runnymede 2030 Local Plan.

1.3 The purpose of this Energy & Climate Change Mitigation SPD is to support the implementation of energy-related criteria of policy **SD7: Sustainable Design**, and the entirety of policy **SD8: Renewable & Low Carbon Energy**[2] of the Runnymede 2030 Local Plan[3] (the 'Local Plan'), by providing technical guidance on achieving and where possible exceeding energy and carbon emissions reduction standards and requirements to improve the environmental sustainability of new development in the Borough.

1.4 The SPD aims to:

- summarise the policy requirements within the Local Plan that are relevant, along with key aspects of national policy;
- set out the information that should be included within energy statements for major development proposals, and for different application types;
- set out the information that should be included within energy information for non-major development proposals;
- provide a questionnaire that non-major development proposals can use in submissions to supply proportionate energy information;
- provide guidance on good practice in sustainable design, construction and energy performance, which goes beyond minimum Local Plan requirements.

1.5 Definitions of major and non-major development are provided in the Glossary. Where this SPD refers to non-major development, it means any development of a smaller scale than major development, including minor and householder development.

1.6 This SPD is intended principally for applicants for planning permission and their agents, and for planning decision-makers. Homeowners are also encouraged to use this SPD to help consider what measures could be taken to improve the energy efficiency measures for their property even where planning permission is not required. However, the Council's Net Zero Carbon Toolkit provides more detailed information for homeowners seeking to retrofit their properties.

1.7 Whilst the SPD cannot introduce new targets or standards, it will add value to the Council's existing development plan for the Borough in a number of ways by:

[2] Refer to the Glossary for a definition of 'Renewable and low carbon energy'.
[3] Available at Runnymede 2030 Local Plan – Runnymede Borough Council

- providing transparent guidance for applicants with more detail about specific policy requirements and expectations;
- requiring applicants to submit information in a structured and consistent way in order to demonstrate compliance with policy;
- helping officers and councillors assess the environmental credentials of developments to make decisions; and
- encouraging developers to go further than current policy to demonstrate excellence in sustainable development.

1.8 This Energy & Climate Change Mitigation SPD focuses on energy efficiency, low carbon heat and renewable energy requirements in order that new and retrofitted buildings reduce their carbon emissions in operation. It complements the Council's adopted Green and Blue Infrastructure SPD which guides developers and decision-makers on how green and blue infrastructure is considered, designed and delivered through new development to build resilience to the impacts of climate change. The Parking Guidance SPD also sets out the Council's electric vehicle parking standards; and the Design SPD describes how environmental standards should be addressed in the design process to achieve sustainable design. This SPD should therefore be read alongside these other SPDs to ensure that designs are optimised to address the impacts of climate change before planning applications are submitted.

1.9 This SPD came into force on 3 October 2024.

Structure

1.10 Section 2 sets out the national, countywide, and local policy context for climate change and sustainable design, construction and low energy consumption. It also summarises the requirements set out in the relevant 2030 Local Plan policies and identifies the information that consequently must be submitted by applicants.

1.11 Section 3 sets out the information that must be included in energy statements submitted for major development proposals. It also provides general guidance on sustainable design and construction that should be referred to when considering developments of all scales.

1.12 Section 4 sets out the energy information that must be submitted for non-major development proposals (minor and householder applications).

1.13 Sections 5-8 provide detailed guidance on applying the energy hierarchy and explains how net zero carbon developments can be achieved which go beyond minimum policy requirements.

1.14 Section 9 provides guidance on retrofitting existing buildings with energy efficiency measures, including buildings with heritage significance.

1.15 Appendix 1 contains a questionnaire that can be submitted for non-major development proposals as an alternative to preparing sustainability and energy information. Appendix 2 clearly sets out the steps that should be taken to calculate the percentage of energy demand generated through the provision of renewable and/or low carbon technologies at step 3 of the energy hierarchy. Appendix 3 summarises the matters to be addressed in a wider Energy and Sustainability Statement.

2. Planning Policy Context

2.1 This section briefly sets out the relevant legislative and planning policy framework which the document seeks to conform with and/or help deliver.

National legislation

2.2 The Climate Change Act 2008 (as amended 2019) legally commits the UK government to achieving net zero carbon emissions by 2050. In 2021 the UK Climate Change Committee's Sixth Carbon Budget[4] committed to a 'world leading' 78% reduction carbon target by 2035, relative to 1990 levels. The reduction of carbon emissions from buildings is a key strand to the Climate Change Committee's strategy in driving emission reductions.

2.3 The Planning and Compulsory Purchase Act 2004 is also relevant in that Local Planning Authorities (LPAs) are bound by the legal duty set out in Section 19, as amended by the Planning Act 2008, to ensure that, taken as a whole, plan policies contribute to the mitigation of, and adaptation to, climate change. In addition, the Planning and Energy Act 2008 allows LPAs to set their own energy efficiency targets above national standards.

National Policy and Guidance

2.4 The National Planning Policy Framework (NPPF)[5] sets out the Government's planning policies for England and how these should be applied. The overarching environmental objectives of the planning system include using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change.

2.5 Chapter 14 of the NPPF is dedicated to meeting the challenge of climate change and states that: "*The planning system should support the transition to a low carbon future in a changing climate", and "should help to shape places in ways that contribute to radical reductions in greenhouse gas emissions", and "support renewable and low carbon energy and associated infrastructure."* The chapter also sets out how plans should take a proactive approach to mitigating and adapting to climate change in line with the objectives and provisions of the Climate Change Act 2008.

2.6 The chapter goes on to emphasise that plans should help increase the use and supply of renewable and low carbon energy and heat, by providing a positive strategy for energy from these sources, and identifying opportunities for development to draw its energy from decentralised, renewable or low carbon energy supply systems. It states that; *"In determining planning applications, local planning authorities should expect new development to: a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."*

2.7 The National Planning Practice Guidance (NPPG) includes a chapter for **Renewable and low carbon energy**[6], emphasising how planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable, to secure the UK's energy supply. Support for energy supplied by

[4] Sixth Carbon Budget: Sixth Carbon Budget - Climate Change Committee (theccc.org.uk)
[5] Available at: National Planning Policy Framework - GOV.UK (www.gov.uk). These policy ambitions remain unchanged in the amended 2024 version subject to consultation in July-September 2024.
[6] Available at: Renewable and low carbon energy - GOV.UK (www.gov.uk)

renewable and low carbon technologies is complemented by the chapter for **Climate change**[7], which emphasises that *"Addressing climate change is one of the core land use planning principles which the National Planning Policy Framework expects to underpin both plan-making and decision-taking".*

2.8 Examples of mitigating climate change by reducing emissions include providing opportunities for the increased use of renewable and low carbon technologies and, decentralised energy and heating, and promoting low carbon design approaches to reduce energy consumption in buildings, such as passive solar design. This SPD provides guidance on how each of these challenges can be achieved, to reflect policy requirements in the 2030 Local Plan.

County Level Policy

2.9 RBC supports Surrey County Council's Climate Change Strategy[8], which sets out the collective approach to tackling climate change. It identifies a range of ambitions and sets targets for these, and following the guidance in this SPD will help achieve some of the Strategy's aims:

- housing and planning – to support the creation of low carbon, healthy homes for residents that reduce emissions, have lower running costs and improve the wellbeing of the community;
- buildings and infrastructure – to pursue lower operational energy use and increased supply of renewable energy to SCC's buildings – this SPD takes a similar approach for new developments;
- waste, resources and the circular economy – create a system centred on circular economy principles that follows the waste hierarchy.

2.10 The Surrey Waste Local Plan (SWLP) 2019-2033[9] provides the spatial and management policies for waste and recycling to 2033 across Surrey. SWLP Policy 4: Sustainable construction and waste management is particularly relevant as it seeks to: minimise waste during construction, maximise opportunities for the re-use and recycling of construction, demolition and excavation residues; and promote integrated storage for waste recycling. Minimising waste and moving toward circular economy principles are important aspects of climate change mitigation.

2.11 This SPD does not provide detailed guidance on resource efficiency to mitigate the impacts of climate change, but SCC has produced useful 'Sustainable Construction and Waste Management in New Development' guidance[10], which seeks to complement Policy 4 of the SWLP, and provides advice about Site Waste Management Plans to be submitted in support of planning applications for major development. Following this guidance can also assist applicants demonstrate that they have addressed criterion (g) of 2030 Local Plan Policy SD7, which supports proposals which pursue sustainable construction and demolition techniques.

Local Policy

2.12 In January 2022, RBC committed to tackling climate change in its Climate Change Strategy[11] and adopted a target to achieve operational 'net zero carbon' emissions from its services and

[7] Available at: Climate change - GOV.UK (www.gov.uk)
[8] Available at: Surrey's climate change strategy - Surrey County Council (surreycc.gov.uk)
[9] Available at: Minerals and waste policies and plans - Surrey County Council (surreycc.gov.uk)
[10] Available at: Sustainable construction and waste management in new development - Surrey County Council (surreycc.gov.uk)
[11] Available at: Climate Change Strategy – Runnymede Borough Council

operations by 2030. In addition, the Strategy sets out how the Council will support local communities, businesses and other stakeholders to achieve the national 2050 net zero target.

2.13 In recognition that 43% of the Borough's emissions are as a result of energy consumption in homes and buildings[12], two of the eight key themes in RBC's Climate Change Action Plan, which delivers the Council's Climate Change Strategy, is 'Greener Homes & Buildings' and 'Energy Generation & Storage'. Meeting the Borough's net zero carbon commitments will be very challenging unless energy consumption in buildings is reduced, energy supplies are decarbonised and levels of local renewable energy generation are increased, which actions under these themes aim to address.

2.14 One of several actions under the Greener Homes & Buildings theme is to produce this SPD, to outline how existing 2030 Local Plan energy-related policy requirements can be implemented more effectively, and be exceeded where possible, to increase the proportion of low carbon developments being delivered in the Borough.

Runnymede 2030 Local Plan

2.15 Adopted in July 2020, the Runnymede 2030 Local Plan ('the Local Plan') sets out the key planning policies which determine the location, scale and timing of new development in the Borough in the period up to 2030.

2.16 A key objective of the Local Plan is to:

"increase resilience to climate change, including flood risk, to reduce greenhouse gas emissions and promote water efficiency and the use of renewable and low carbon energy".

2.17 This SPD focuses on the application of the energy hierarchy in accordance with Policy SD8 of the Local Plan to achieve this objective, but Policy SD7 also contains a relevant policy criterion for energy reduction which should be considered early in the design process:

Policy SD7: Sustainable Design

Development proposals will be supported where they:
…

c) Maximise opportunities for passive solar gain and passive cooling through the orientation and layout of development;

2.18 Policy SD8 on Renewable & Low Carbon Energy was developed to ensure new development helps to reduce greenhouse gas emissions through its design, and to provide a positive strategy to increase the use and supply of renewable and low carbon energy and heat, in accordance with the NPPF. The full policy is presented in the box below:

Policy SD8: Renewable & Low Carbon Energy

The local planning authority will support proposals for stand-alone and community led renewable, low carbon and decentralised sources of energy, unless any adverse impacts to local amenity or to the built, natural and historic environments cannot be overcome. Major development proposals will be required to submit an energy statement demonstrating how the following energy hierarchy has been applied and how it will be implemented in the proposal:

[12] According to the Council's Estate and Area Greenhouse Gas Baseline Report (October 2023) (Aether).

1) Be lean; use less energy

2) Be clean; supply energy efficiently

3) Be green; use renewable energy

For step 3 in the hierarchy, development proposals of 1,000sqm or more of net additional floorspace will be expected to incorporate measures to supply a minimum of 10% of the development's energy needs from renewable and/or low carbon technologies unless it can be demonstrated with evidence that this is not feasible or viable. In addition:

a) Development proposing 10,000sqm-50,000sqm of net additional floorspace should consider whether connection to existing renewable, low-carbon or decentralised energy networks is possible. Unless it can be demonstrated with evidence that connection to existing networks is not practical, feasible or viable, the development scheme will be expected to connect to existing renewable, low carbon or decentralised energy sources; or

b) Applications for any development proposing more than 50,000sqm of net additional floorspace will be expected to provide onsite, new decentralised networks of renewable or low carbon energy sources within the development proposal, to exceed the 10% requirement of their own needs, and allow future third party connection, unless it can be demonstrated with evidence that doing so is not practical, feasible or viable.

2.19 The design and positioning of renewable and/or low carbon energy equipment needs to take into account any potential adverse impact on the design of a property or character of an area. Such matters are covered by other policies in the Local Plan - in particular Policies EE1: Townscape and Landscape Quality, EE2: Environmental Protection, and policies dealing with heritage assets (EE3-EE8 inclusive).

Other Relevant Standards - Building Regulations

2.20 Building Regulations set standards for design and construction of buildings to ensure the safety and health of people in or about those buildings. They include requirements to ensure that fuel and power is conserved, but these requirements only cover the 'regulated energy' of a building i.e. the building energy consumption resulting from the specification of controlled, fixed building services and fittings, including space heating and cooling, hot water, ventilation and lighting.

2.21 A number of Government Approved Documents[13] provide guidance in meeting the minimum standards set by the Building Regulations, and are considered relevant in how buildings are designed to adapt to or mitigate climate change. Of particular relevance to this SPD are those providing guidance on the application of Part L (Conservation of fuel and power); Part F (Ventilation); and Part O (Overheating).

2.22 The Local Plan does not contain a policy requirement for a percentage improvement over and above Part L standards. However, in June 2022 new Part L regulations came into force requiring a 30% reduction in carbon emissions when compared to 2013 Part L standards. The new regulations cover new homes, new commercial buildings, renovations and extensions to existing homes, and to existing buildings other than dwellings.

[13] Available at: Approved Documents - GOV.UK (www.gov.uk)

2.23 Achieving this national standard of energy efficiency can be achieved solely through either a fabric-first design approach (maximising solar gain through appropriate location and design, enhanced insulation, glazing, airtightness and high efficiency heating and hot water heat recovery), a renewable energy approach (the use of solar photovoltaics or other renewables), or a combination of both. In applying the energy hierarchy in accordance with Policy SD8 of the Local Plan, **a fabric-first approach** should be considered in the first instance to reduce energy demand, before considering the use of renewables.

2.24 Whilst the Local Plan does not set a percentage improvement above existing Part L standards, the energy performance specifications set out in the guidance supporting Part L (Approved Document L[14]) should be considered early in the design process. Meeting the specifications will affect the design of the scheme, for example through the incorporation of solar PV panels and/or air source heat pumps, which will need to be assessed for visual and noise impacts.

2.25 Applicants are therefore expected to submit information with planning applications to demonstrate the proposed approach to achieving Part L standards, which will be a key consideration in applying the energy hierarchy in accordance with Policy SD8. Further guidance is provided in Section 3 below.

2.26 In 2023-2024, the Government consulted on the Future Homes and Buildings Standards (FHBS), outlining proposals to amend the Building Regulations to achieve a 75-80% reduction in carbon emissions when compared to 2013 Part L standards, predominantly through the use of air source heat pumps instead of fossil fuel boilers. It is anticipated that the new FHBS will be implemented in 2025, with transitional arrangements applying to individual buildings rather than across a whole site.

2.27 Nearer the time the FHBS is introduced, applicants preparing information in support of a planning application will therefore need to be mindful that different regulations may apply to different parts of the site over the course of the build programme – particularly for phased development schemes.

[14] Available at: Conservation of fuel and power: Approved Document L - GOV.UK (www.gov.uk)

3. Information Requirements

3.1 This section sets out the information that applicants must provide in support of applications in order for planning decision-makers to assess whether the policy requirements in Section 2 above have been met.

Information Requirements for Different Types of Development

3.2 The following table sets out the Council's information requirements for different types of development (as defined in the Glossary) to demonstrate compliance with Policy SD8 (and criterion (c) of Policy SD7, which should be considered when applying the first step of the energy hierarchy):

Types of development	Information required
Major development proposals	To include an Energy Statement demonstrating how the energy hierarchy has been applied to support the application[15]. The low carbon/renewable energy requirement at step 3 of the hierarchy should be calculated and displayed in the Energy Statement in accordance with guidance in Appendix 2 of this SPD.
Non-major development proposals i.e. minor development and householder applications	Will also need to demonstrate how energy and sustainable design considerations have been addressed. Information should be proportionate to the scale of development proposed - a reduced level of detail is acceptable but must be sufficient to show that the development has been designed to be capable of meeting national energy and carbon reduction requirements (set out in Part L of the Building Regulations[16]). The Energy and Sustainability Questionnaire at Appendix 1 of this SPD can be used to demonstrate that all of the key issues have been considered and reflected in the design of development. Non-major developments may also submit Energy (and Sustainability) Statements instead of a completed questionnaire, but this is not a policy requirement. Any questionnaire or statement should be produced at an early stage in the initial design work as they should inform the scheme as it emerges.
Which may include the following types of development…	
Extensions and alterations to existing dwellings	Part L standards now apply to extensions and alterations to existing dwellings. Where planning permission is needed, information should be provided with applications to indicate how the proposed development schemes have been designed to conserve fuel and power and achieve these minimum national standards. There is an opportunity to provide this information in the Energy and Sustainability Questionnaire at Appendix 1.
Multiple building developments	As an alternative to providing energy information for all units, evidence can be provided for a sample representative of the different types of units and their positioning and solar orientation on the site.
Stand-alone renewable energy proposals	Additional information will need to be submitted such as landscape and visual impact assessments. It should be noted that applications for renewable energy projects in Runnymede's Green Belt will need to

[15] The Council's approved local validation checklist refers to an Energy and Sustainability Statement. This SPD is focused on the energy component of such a statement.

[16] Note that Part L standards now apply to extensions and alterations to existing dwellings, which may require planning permission, and information should be provided to indicate how the proposed development schemes have been designed to conserve fuel and power and achieve these minimum national standards. See 'Extensions and alterations to existing dwellings' in Table 1 for more detailed information.

	include information describing the 'very special circumstances' which exist in order to be approved[17].

Table 1: Information requirements for different types of development

3.3 Although Policy SD8 only requires major development proposals to submit an energy statement demonstrating how the energy hierarchy has been applied, it is strongly recommended that non-major development schemes are also designed to reduce energy use in line with the energy hierarchy – particularly as the first step of the hierarchy (reduce energy demand) will help proposals achieve criterion c) of Policy SD7 (maximise opportunities for passive solar gain and passive cooling) which applies to all development types.

Requirements for Different Types of Planning Application

3.4 When submitting a planning application, an applicant must clearly identify whether the proposal relates to an outline, full (including reserved matters) or hybrid application. These are briefly defined in Table 2 below. The information requirements in relation to energy use and carbon reduction for each type of planning application for major development proposals are set out in Table 3 below.

3.5 Where the relevant design details are not known e.g. for outline planning applications, planning conditions to approve the details may be agreed. However, it is the Council's preference that information is submitted at the earliest planning application stage wherever possible[18], rather than being submitted post-planning in response to a condition. This is because measures used to reduce energy use, maximise energy efficiency, and supply low carbon/renewable energy can affect the design of a scheme at the outset.

3.6 If during the life of an application material amendments are made, the energy (and sustainability) statement may need to be updated.

Type of application	Description
Outline planning application	Seeks to establish whether the scale and nature of a proposed development is acceptable in planning terms before a detailed 'reserved matters' application[19] is put forward.
Full/reserved matters planning application	Includes all of the detailed proposals of how a site can be developed, which permission is based on.
Hybrid planning application	Seeks outline planning permission for one part of the site and full planning permission for another part of the same site.

Table 2: Planning application types summarised

Application Type	Energy (and Sustainability) Statement Requirements for Major Development Proposals
Full (and reserved matters) planning applications	Energy Statement required – a detailed energy assessment which includes full information about how the energy hierarchy has been applied, and how it will be implemented in the proposal.

[17] The NPPF outlines that elements of many renewable energy projects will comprise inappropriate development in the Green Belt. The Council will assess whether 'very special circumstances' exist based on the merits of each case. Should a revised NPPF be adopted which allows for renewable energy development on 'Grey Belt' land through decision-making, the Council will assess whether any associated rules/policy requirements have been satisfied and that the function of the Green Belt is not fundamentally undermined. Information required will be confirmed in the Council's validation document.

[18] A partially completed questionnaire or partial information statements may be submitted at the outline stage covering the matters covered by the outline application.

[19] Outline planning permission is granted subject to conditions requiring the subsequent approval of one or more 'reserved matters' i.e. matters which are reserved for later determination as defined in the Town and Country Planning (Development Management Procedure) (England) Order 2015.

	When a reserved matters application is submitted, it should be accompanied by a detailed energy assessment which should demonstrate consistency with the outline strategy. Planning conditions and/or section 106 agreements should be used to secure the implementation of proposed measures. They must not be used to secure feasibility work that normally underpins a planning application, as discharge of conditions stage will be too late in the process for feasibility work to influence the design of the development.
Outline planning applications	Energy Statement required – but proportionate detail will be expected. For example, if an outline plan includes a site layout, it should be accompanied by information setting out how the layout complies with the matters set out in policy and this SPD (e.g. how the layout is designed to reduce energy consumption). Statements should include initial feasibility work on each step of the energy hierarchy. Assessments must report estimated site-wide regulated energy needs (broken down for domestic and non-domestic elements of the development where applicable). For proposals of 1,000sqm or more of net additional floorspace, demonstrate indicatively how the minimum 10% renewables requirement will be met and commit to providing further renewable and/or low carbon technology information as part of any detailed reserved matters planning application. For proposals over 10,000sqm net additional floorspace, demonstrate that connection to existing or incorporation of new renewable, low-carbon or decentralised energy networks has been considered. This should be proportionate to the scheme proposed with a commitment to provide an updated feasibility study at reserved matters stage where such matters would be revisited. Futureproof the energy strategy to that it considers the energy targets that are likely to be in place at the time of submission of the reserved matters application, to ensure that the scheme will meet any higher regulatory targets coming into force such as the Future Homes & Buildings Standards (subject to transitional arrangements). Key energy commitments will be secured through planning obligations (where they meet the relevant tests) and/or through appropriate planning conditions.
Hybrid planning applications	Provide an Energy Statement for the entire site with design and expected energy performance for the detailed and outline parts of the site presented separately, according to the requirements set out in the preceding parts of this table.

Table 3: Submission requirements and energy statement content for different application types

Integration with Other Supporting Documents for Planning Applications

3.7 A number of accreditation schemes exist which can be used to demonstrate the proposed development will achieve the energy and carbon emission reduction requirements of Policy SD8, as well as a number of the sustainable design requirements of Policy SD7. What these schemes have in common is that they all require new development to follow the hierarchical

approach to reducing energy demand and associated carbon emissions.

3.8 Where such schemes are pursued, it may be appropriate to cross-reference these documents within an energy statement, provided cross-referencing is clear and the documents contain sufficient information to allow an assessment of the application. The following information will provide confidence that the energy requirements in the Local Plan have been met:

- For new-build residential schemes: Home Quality Mark design-stage evidence (usually a pre-assessment report) showing that credits will be achieved in the following assessment criteria:
  - Temperature – to minimise the risk of overheating
  - Ventilation – to provide effective continuous ventilation to all areas of a home with increasing levels of building airtightness
  - Energy and Carbon Performance – focusing on energy efficient design and construction
  - Decentralised Energy – to maximise cost and carbon-saving benefits of generating energy from low and zero carbon technologies
  - Impact on Local Air Quality – choice of heating and hot water systems with little or no impact on air quality.
- For commercial schemes: BREEAM New Construction design-stage evidence (usually a pre-assessment report) for Very Good ratings and above showing that credits will be achieved for the following energy assessment criteria:
  - Reduction of energy use and carbon emissions
  - Low carbon design – credits to show that passive design measures have been analysed (in accordance with criterion c) of Policy SD7) and low and zero carbon technologies have been assessed for feasibility (in accordance with applying the energy hierarchy as required by Policy SD8).
- For refurbishment schemes: BREEAM Refurbishment and fit-out design-stage evidence (usually a pre-assessment report) for Very Good ratings and above showing that credits will be achieved for the following energy assessment criteria:
  - Reduction of energy use and carbon emissions
  - Low carbon design – credits to show that passive design measures have been analysed (in accordance with criterion c) of Policy SD7) and low and zero carbon technologies have been assessed for feasibility (in accordance with applying the energy hierarchy as required by Policy SD8).
- For any new buildings: Passivhaus[20] design-phase assessment at preliminary review stage.
- For building retrofit schemes: Passivhaus EnerPhit design-phase assessment at preliminary review stage.

3.9 As well as design-stage evidence, for any of the accreditation schemes mentioned above, the Council will need to see proof that the accreditation has been achieved once the development has been completed (e.g. through the submission of the post-construction report and relevant certification).

3.10 The Council's Net Zero Carbon Toolkit provides additional guidance on achieving Passivhaus standards, including a useful checklist providing a list of key actions that should be carried out at from concept design to handover.

[20] The Passivhaus standard aims to deliver net-zero-ready new and existing buildings, with clear, measured targets, focused on high-quality construction, certified through an exacting quality assurance process. EnerPHit is a slightly relaxed standard for retrofit projects, where the existing architecture and conservation issues mean that meeting the Passivhaus standard is not feasible. Further information is available at: Home (passivhaustrust.org.uk).

4. Energy Statement Content

4.1 Applicants are expected to provide the following information in an Energy Statement (or within the energy component of an Energy and Sustainability Statement) in order for decision-makers to assess whether proposals are compliant with Local Plan Policy SD8:

- a non-technical summary;
- a description of how the energy hierarchy has been applied (see Sections 5-7), and commit to the key measures and carbon emission reductions identified for each stage of the hierarchy;
- calculations of energy demand and emissions at each stage of the hierarchy for regulated energy (see Appendix 2 for guidance on calculating and displaying energy demand);
- heat networks and/or Combined Cooling Heating and Power (C)CHP appraisal or connection strategy, where appropriate (see Section 6);
- an appraisal of suitable low carbon or renewable energy technologies (see Section 7); and
- the 'as-designed' Building Regulations Part L outputs (to demonstrate that the scheme has been designed to meet and preferably exceed minimum national energy and carbon emissions performance standards).

4.2 The following sections provide details of the energy hierarchy and how it should be applied. Within the steps, it covers each of the above components.

4.3 This SPD provides guidance on achieving policy requirements in relation to energy and carbon emissions reduction. For the avoidance of doubt, it is also expected that a sustainability section of the statement (or a separate statement) demonstrates how the sustainable design requirements of Policy SD7 will be complied with. Appendix 3 summarises the matters which should be considered by proposals.

Applying the Energy Hierarchy

4.4 Figure 1 shows the sequence of steps that should be taken in applying the energy hierarchy.

4.5 The energy hierarchy must inform the design, construction and operation of new buildings. The priority is to minimise energy demand, and then address how energy will be supplied and renewable and/or low carbon technologies incorporated. This approach is often summarised as "**be lean, be clean, be green**".

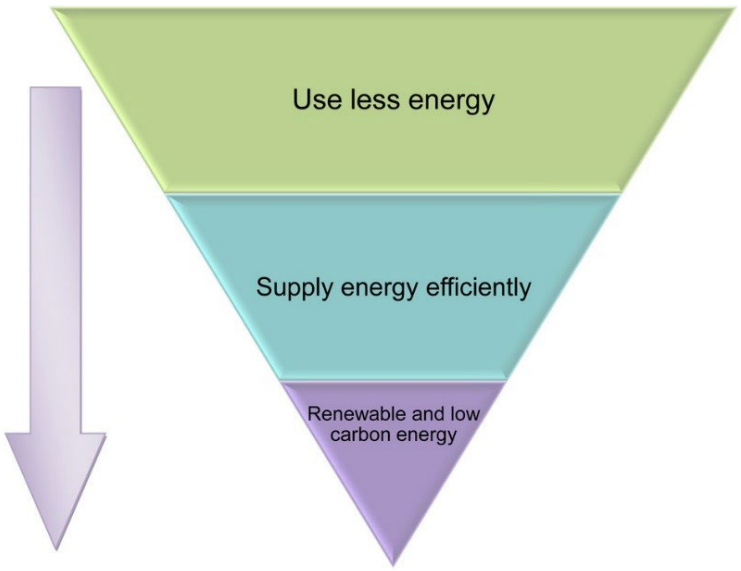


Figure 1: The Energy Hierarchy

4.6 Details of what to do at each stage of the hierarchy are set out in the following sections of the SPD.

5. Reduce energy demand (Be Lean)

Our requirements to achieve a lean development:

- Applicants for developments of all scales must optimise building design to reduce energy demand.
- Applicants for major development must demonstrate in an energy statement how a fabric-first approach has been pursued within the framework of the energy hierarchy.
- At a minimum, design the scheme to meet national fabric performance standards (in accordance with Part L of the Building Regulations).
- Maximise passive design measures such as building form, orientation, passive solar design, natural ventilation, increased insulation and air tightness.

Best practice guidance:

- Exceed Part L Building Regulations specifications for energy efficiency and achieve a greater reduction in carbon emissions.
- Follow the steps in the Council's Net Zero Carbon Toolkit to achieve an ultra-low energy scheme i.e. one where a building has very low space heating demand (this is the energy required to heat a building – usually the largest component of regulated energy). The Toolkit's recommended space heating demand targets are set out in Section 8 of this SPD. Full details for non-residential development are given in the LETI Climate Emergency Design Guide[21].
- Use of voluntary industry standards and assessment methods are strongly encouraged to achieve energy efficiency and carbon reductions beyond Building Regulations standards. These include BREEAM, Home Quality Mark, Passivhaus, EnerPHit and Energiesprong. The Net Zero Carbon Toolkit provides further guidance on the use of Passivhaus certification to achieve highly energy efficient homes, but Passivhaus can be used for a variety of building typologies, such as schools, offices, care homes and hotels.

5.1 'Be lean' is about using less energy by minimising energy demand. The Council aims to promote the highest possible energy efficiency standards reflecting the latest available technologies in all new developments. This will help reduce 'regulated' carbon emissions.

Building Design

5.2 Building design can play a critical role in reducing energy demand and this is the first step in following the principles of the energy hierarchy. Whilst major developments are required to demonstrate how this first step has been applied in an energy statement, applicants for developments of all scales are expected to reduce energy demand by optimising building design.

5.3 The Council fully supports the development industry term '**fabric first**'. This means that energy demand should be reduced by maximising the performance of the components and materials that make up the building fabric (i.e. the materials used in walls, floors, windows and doors) and designing the building to make best use of the surrounding environment, before improving efficiency further through the use of efficient building services or lowering carbon emissions further through low carbon energy.

[21] Available at: https://www.leti.uk/cedg

5.4 The term ‘fabric’ also includes the building’s overall airtightness, as well as the impact of thermal bridges where the insulation is not continuous[22].

5.5 Making informed decisions at an early design stage is key to delivering energy efficiency in practice. The specification of the fabric, materials and heating and cooling systems will have a significant impact on the energy demand of a building. However, even more fundamental are some key design decisions which are typically shaped very early on, relating to a building’s form, orientation and window proportions/glazing ratio.

5.6 These are all aspects that do not add extra construction cost, but if optimised within the design can significantly improve the building’s efficiency. The following factors should be taken into account in applying the first step of the energy hierarchy.

Orientation, Glazing Ratios and Form Factor

5.7 A building’s orientation combined with its glazing ratio[23] is key to minimising energy demand. Criterion c) of Policy SD7 supports development proposals where they maximise opportunities for passive solar gain and passive cooling through the orientation and layout of development. Passive solar gain refers to the process whereby a building is heated by the sun, either directly from sunlight passing through a window and heating the inside of the building, or indirectly as sunlight warms the external fabric of the building and the heat travels to the interior.

5.8 In the UK over the course of a year, north facing windows nearly always lead to net heat loss, whereas south facing ones can normally be designed to achieve a net heat gain. However, the amount of south facing glazing should also be optimised to prevent the risk of summer overheating. Although east/west windows can provide useful gains, they can often lead to overheating due to the low angle of the sun at the start/end of the day.

5.9 There are a number of low energy measures that can mitigate overheating risk, including solar shading, building orientation and solar-controlled glazing.

5.10 In the denser urban areas of the Borough, plots may not allow the flexibility to orientate in the most optimum way, but these simple principles should be borne in mind.

5.11 The optimum glazing ratios for the UK climate are up to 25 per cent glazed on the southern elevation, no more than 20 per cent on the east/west elevations and as little as possible on the northern elevation. Figure 2 below shows the impact on space heating demand as the same building is rotated to place its originally south facing glazing in a northerly direction. It shows that purely by changing the building’s orientation, the space heating demand can increase from 13kWh/m2 /yr to 24kWh/m2 /yr.

[22] The BRE Group provide a useful explanation of the importance of thermal bridging: The importance of thermal bridging : BRE Group

[23] Glazing ratio is the proportion of glazing to opaque surface area in a wall. Also called window-to-wall ratio, it is a key variable in façade design affecting energy performance in buildings.

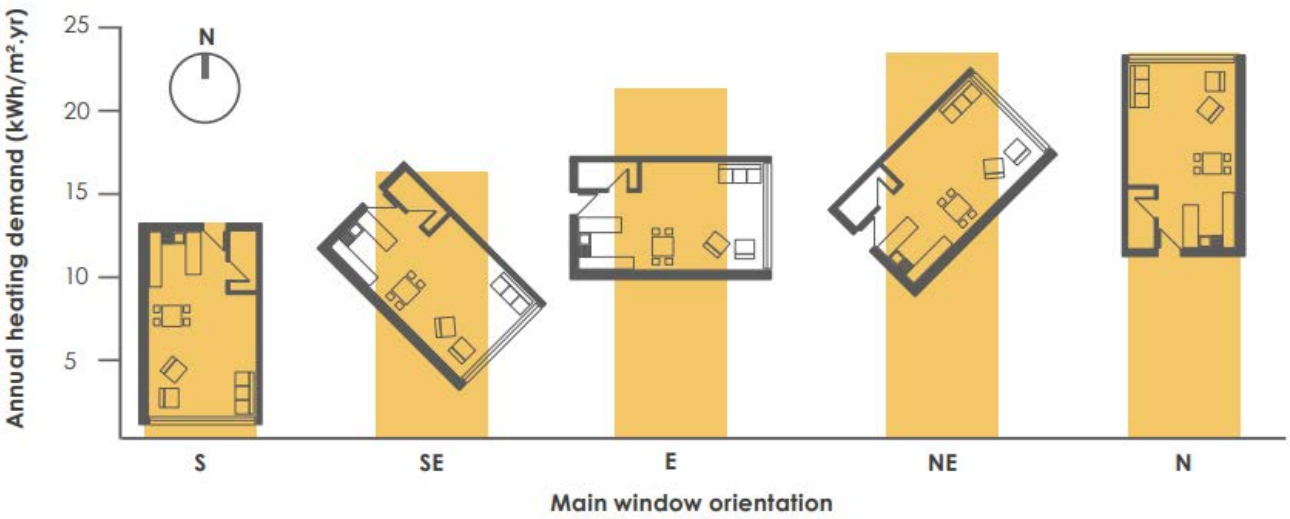


Figure 2: How orientation can affect energy demand (Source: LETI Climate Emergency Design Guide, 2020)

5.12 A building's form factor is the ratio of its external surface area (i.e. the parts of the building exposed to outdoor conditions) to the internal floor area. The greater the ratio, the less efficient the building and the greater the energy demand. Detached dwellings will have a high form factor, whereas flats will have a much lower form factor and thus will tend to be more energy efficient. Figure 3 shows how different designs can have inefficient or efficient forms. Again, often the site context will define the building form and massing (particularly where sites are in Conservation Areas for example). However, this is a useful consideration.

5.13 If a building is designed with a poor form factor, then the fabric efficiency will need to be increased significantly to achieve the optimum levels of performance. This will increase costs as more insulation and more efficient systems will be required.

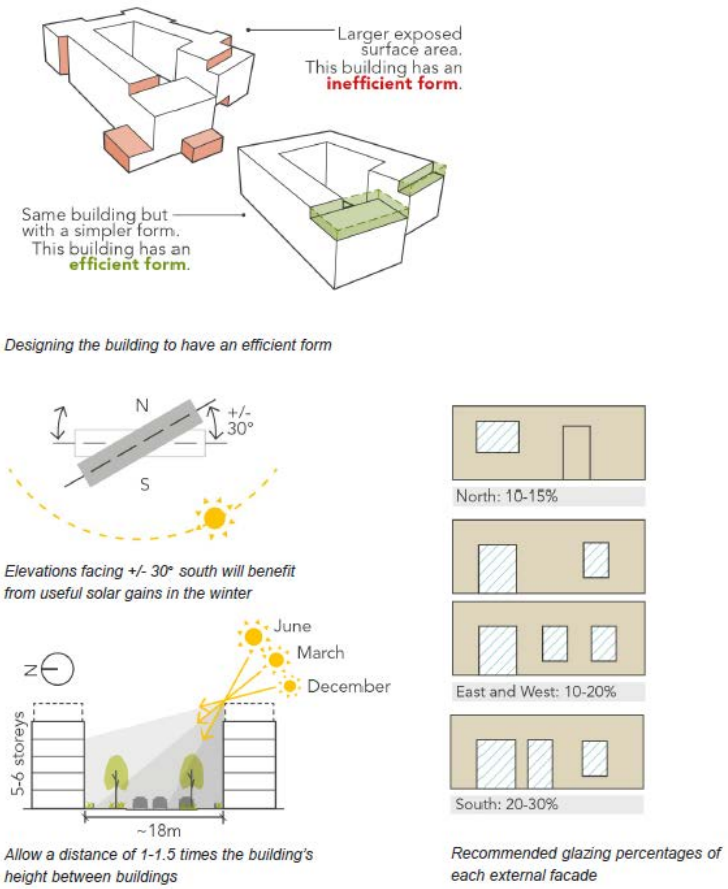


Figure 3: Illustrations from the Council's Net Zero Carbon Toolkit (Source: Levitt Bernstein & Etude)

Construction Methods & Quality

5.14 There are many different construction methods that could be used for building low energy buildings: brick and block, timber frame, steel frame, structurally insulated panels, insulated concrete framework etc. However, some methods lend themselves better to the aim of energy efficient buildings than others. For example, closed panel timber framing may deliver a better quality and more thermally efficient structure than an open panel timber frame. Similarly, a solid, insulated masonry wall may be easier to control for

airtightness than a cavity wall.

5.15 The quality of workmanship on-site has a big impact on energy performance. Pitfalls to avoid include badly installed insulation which will reduce its effectiveness (e.g. compressed insulation, uninsulated gaps, or wall ties not being installed correctly), and site operatives cutting through air-tightness layers.

5.16 Ways to mitigate these risks include:

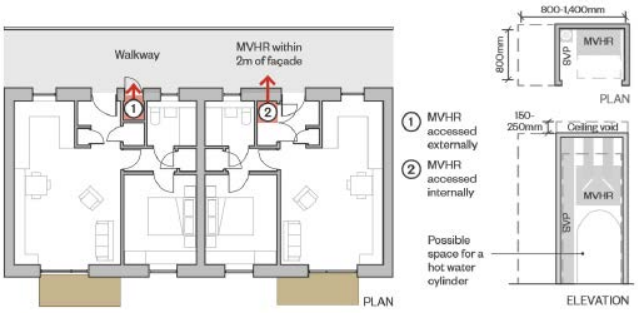
- frequent checks on-site of insultation and airtightness measures by an expert so problems can be addressed along the way rather than be missed;
- using off-site construction methods can help where there is a factory quality-controlled manufacture;
- using recognised quality regimes such as Passivhaus or Home Quality Mark can provide assurances of better quality.

Airtightness and Ventilation

5.17 Airtightness significantly improves energy efficiency and comfort, often for a relatively modest cost. Developers are encouraged to exceed minimum Part L Building Regulations specifications and achieve best practice levels of air permeability of less than 1m3/h/m2.

5.18 Aim to develop an airtightness and ventilation strategy and plan for at least two air tests – the first as soon as the building is weathertight and the second test on completion.

5.19 To maintain good air quality, and to reduce heat losses within a home, the use of a Mechanical Ventilation with Heat Recovery (MVHR) unit is critical. Not only does this unit supply air into living spaces, it does this using very little energy.



MVHR systems are an effective way of providing ventilation to airtight homes. The unit should be located within 2m of the façade (Source: Levitt Bernstein + Etude)

5.20 New Building Regulations have been introduced (Part F) which set minimum standards for ventilation in new dwellings and buildings other than dwellings. Various systems can be used to achieve Part F compliance, with further guidance on appropriate ventilation strategies provided in Approved Document F. However, these represent minimum standards and in order to have an efficient MVHR, the Council's Net Zero Carbon Toolkit recommends that a MVHR system meets the performance criteria in Figure 4.

Key requirements for a good MVHR system	
Distance from external wall	<2m
Specific fan power	<0.85 W/l/s
Heat recovery	>90%
Thickness of duct insulation mm	>25mm
Certification	Passivhaus Certified
Maintenance	Easy access for filter replacement.

Figure 4: Performance criteria for MVHR systems as recommended in the Council's Net Zero Carbon Toolkit (Source: Levitt Berstein & Etude)

Avoiding Overheating

5.21 Whilst passive solar gain can reduce the carbon emissions associated with heating, if used incorrectly it can lead to overheating, which in turn can lead to the installation of mechanical cooling equipment (e.g. air conditioning). Mechanical cooling increases energy consumption and requires maintenance, resulting in costs and carbon emissions. Mechanical cooling units

also produce heat that requires dissipation. The need for mechanical cooling can be avoided or lessened by designing-in passive ventilation and passive cooling measures.

5.22 Overheating is a known risk and can be reduced through good design, for example:

- Ensure glazing areas are not excessive i.e. not more than 20-25%of facade on south or west façades.
- Avoid fixed panes and maximise opening areas of windows. Side-hung windows typically allow more ventilation than top hung.
- Favour dual aspect homes to allow cross ventilation.
- Provide appropriate solar shading. South façades should have horizontal shading over the window and the west façade should ideally have movable vertical shading e.g. shutters.
- Avoid relying on internal blinds, which can be removed by occupants.
- Select a g-value (the solar factor indicating how much heat is transmitted from the sun) for glass of around 0.5 where possible.
- Use Good Homes Alliance overheating checklist for risk assessment.

5.23 Energy Statements should demonstrate how buildings have been designed for passive ventilation ahead of mechanical measures.

5.24 This approach compliments the new legal requirement introduced in December 2021 in the Building Regulations (Part O) to reduce the risk of overheating in new dwellings, institutions, and buildings with one or more rooms for residential purposes (excluding hotels). Part O1 of Schedule 1 to the Building Regulations states that reasonable provision must be made to limit unwanted solar gains in summer, and to provide an adequate means of removing heat from the indoor environment. In meeting these obligations, account must be taken of the safety of any occupant and their reasonable enjoyment of the residence. Mechanical cooling can only be used to meet the requirement where other methods are incapable of removing sufficient heat from the home. Technical guidance on meeting the requirements of Part O is provided in Approved Document O and a set of frequently asked questions[24].

5.25 To summarise, a building's form, orientation, glazing ratio, external design, internal layout and the construction materials used can all be optimised within the design to significantly improve the building's energy efficiency. The Council's Net Zero Carbon Toolkit provides detailed guidance on these factors and includes a useful checklist to use at concept design stage.

5.26 An additional key consideration is the multiple benefits of trees and tree planting. Well placed deciduous trees can increase the shading and natural cooling of buildings and spaces during the summer months and allow more natural light and heat to be received during the winter months when the leaves have fallen and when demand for heating and lighting is highest. Tree planting can also be used to shelter buildings from the wind and minimise unwanted cooling. The Green and Blue Infrastructure SPD Design Checklist prompts applicants to signpost how they have considered how trees species have been chosen that help cool spaces in the summer, provide solar gain in winter, and reduce rainwater runoff while contributing to biodiversity. Structural planting should be designed to create shelter from winds in winter and shade in summer.

[24] Available at: Overheating: Approved Document O - GOV.UK (www.gov.uk)

6. Supply Energy Efficiently (Be Clean)

Our requirements to achieve a clean development:

- On larger schemes[25], Policy SD8 requires development proposals to consider the feasibility of connecting to, or incorporating new, decentralised energy networks to supply energy efficiently.
- Follow the CIBSE Heat Networks Code of Practice[26] where decentralised energy networks are assessed to be the best energy strategy for supplying energy efficiently.

Best practice guidance:

- All new buildings should be built with a low carbon heating system and avoid connecting to the gas network.
- Smaller-scale developments can investigate opportunities to connect to or establish new heat networks if this is assessed to be the best energy strategy for supplying energy efficiently.
- Where there is a lack of decentralised energy networks in the Borough, major developments should instead deliver low temperature communal distribution systems served by heat pumps, or ensure development is designed with the capability to connect to new/future heat networks (as opportunities for the development of heat networks in the Borough are still being explored). Further guidance on communal heating schemes is provided in the Council's Net Zero Carbon Toolkit.

6.1 The 'be clean' stage of the energy hierarchy aims to ensure that developments have an efficient supply of heat and power. It is the local supply of heat and energy which optimises supply to demand so is much more efficient. This step is typically achieved through the connection to existing and proposed decentralised energy networks (or 'heat networks'), or by establishing new networks in larger developments.

6.2 Heat networks can deliver energy in a more efficient, lower carbon manner and provide good heat energy services to residents/occupants if operated effectively.

What are Heat Networks?

6.3 Decentralised energy networks (DENs), also referred to as district heat networks, represent a way of distributing heat (and more rarely, power) generated from a given energy source(s) across multiple buildings or sites. A network is heat-technology-neutral meaning that heat may come from boilers, heat pumps, Combined Heat and Power (CHP), heat pumps elevating heat in the ambient environment (air, ground or water) or waste heat sources. A network of pipes carrying hot water or steam, usually underground, connects heat production equipment with heat customers. They can range from several metres to several kilometres in length.

6.4 A heat network can be more beneficial than each property having its own heating system because heat generation can be more efficient at larger scales, and the heat source can be replaced with new zero carbon technologies as they become available in the future with minimal disruption to the residents/occupants.

[25] Development proposing 10,000sqm or more of net additional floorspace
[26] Available at: CP1 Heat networks: Code of Practice for the UK (2020) (pdf) | CIBSE

6.5 The term ‘communal heating’ differs from district heating in that the heat source in communal heating supplies heat to two or more customers within the same building.

6.6 The government has indicated in its Heat and Buildings Strategy[27] that heat networks will be an important part of the country’s net zero future. The Climate Change Committee also recommends that around 18% of heat should come from heat networks by 2050 to help achieve net zero targets. The government’s proposed Future Homes and Buildings Standards will enable new homes and non-domestic buildings to be connected to existing and new heat networks where they can demonstrate that they are adding new low carbon technologies, or are able to make use of existing low carbon heat which is currently unused.

What are the Council’s Requirements?

6.7 Local Plan Policy SD8 sets out the following requirements:

Scale of development (net additional floorspace)	Policy SD8 Requirement
10,000sqm-50,000sqm	Consider whether connection to existing renewable, low-carbon or decentralised energy networks is possible. Connection will be expected unless evidence is provided demonstrating that this is not practical, feasible or viable.
More than 50,000sqm	Provide onsite, new decentralised networks of renewable or low carbon energy sources within the proposal to exceed the 10% requirement of their own needs, and allow for future third party connection unless evidence is provided demonstrating that this is not practical, feasible or viable.

6.8 Whilst the policy requirements apply to larger-scale development, this does not preclude smaller-scale developments investigating opportunities to connect to an existing or new heat network if this is considered to be the best energy strategy for supplying energy efficiently.

6.9 Ahead of submitting an application, applicants for larger-scale developments including refurbishments and conversions which come under the size thresholds in Policy SD8 and where planning permission is required, should investigate if there are any local existing or planned heat networks within proximity (typically 500m or less of the proposed site), and provide commentary in an energy statement on the feasibility of connection, or for larger developments, within a separate feasibility study.

6.10 It is recommended that a feasibility study compliant with the latest CIBSE Heat Networks Code of Practice[28] is conducted at the earliest stage of the design process. As part of this process, applicants should evidence correspondence with the local decentralised energy operator.

6.11 Where future connection is considered feasible, the ability to connect should be provided for developments. Where an existing or proposed network is not available, larger-scale developments should consider establishing a new network.

6.12 In some cases, a contribution towards the connection costs will be sought from the building owner/occupier. This may be sought through negotiation of a legal agreement with the developer.

[27] Available at: Heat and buildings strategy - GOV.UK (www.gov.uk)
[28] Available at: CP1 Heat networks: Code of Practice for the UK (2020) (pdf) | CIBSE

Heat Network Opportunity Areas in Runnymede

6.13 The Council's Climate Change Study[29] includes a Renewable Energy Assessment Report which provides a high-level assessment of the technical potential of various technologies being deployed in the Borough, including heat networks. The Renewable Energy Assessment Report can assist applicants with feasibility assessments.

6.14 The report identifies an existing heat network installed as part of the Addlestone One development, with 365kW thermal capacity. Several residential and commercial buildings nearby are already supplied by energy-efficient heating and hot water. Applicants for development proposals within close proximity to the Addlestone One network should contact the Council for up-to-date information when conducting their feasibility study.

6.15 The report provides a high-level indication of areas within Runnymede where heat networks are likely to be most viable, based on the demand for heat from existing buildings. As expected, these are predominantly in built-up areas such as Egham, Chertsey and Addlestone and further detailed analysis to identify specific opportunities within these areas would be required. Figure 5 illustrates heat density from blue to red, with blue areas being low density and red areas high density.

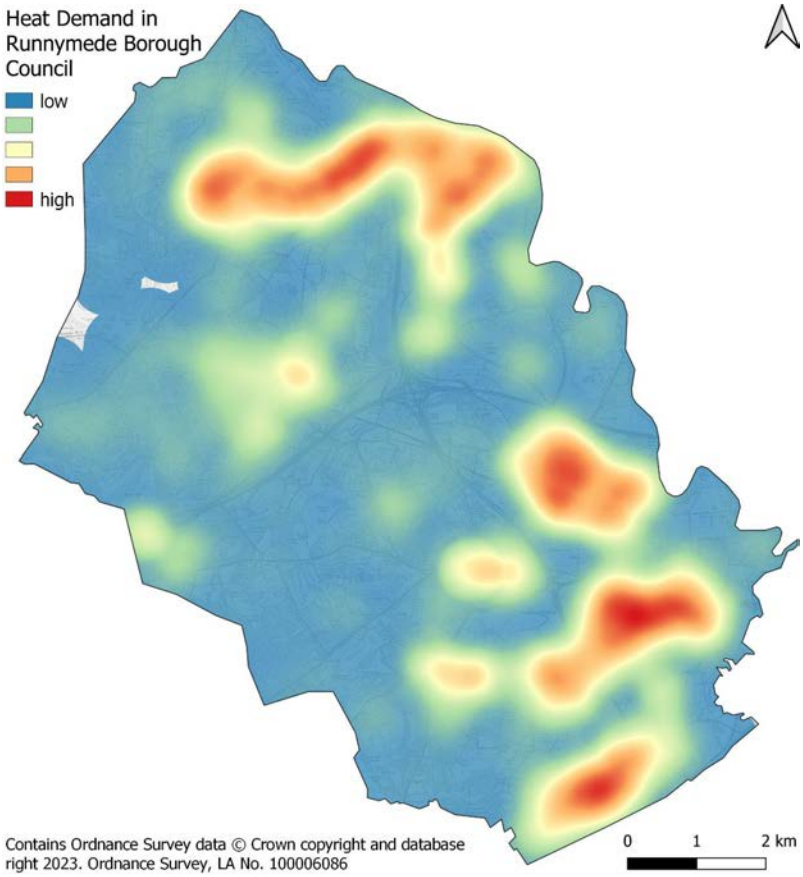


Figure 5: Heat demand density in Runnymede Borough (Source: Climate Change Study, December 2023)

6.16 The report also identifies 'heat focus areas' which are potentially worthy of further consideration. These areas should be considered alongside planned large-scale new development which offer particular opportunities for heat networks. The majority of heat focus areas in the Borough are located in Egham, Chertsey and Addlestone – see Figure 6 below. However, the report

[29] Available at: 2030 Local Plan Review Evidence Base documents – Runnymede Borough Council

provides guidance only, and applicants for larger-scale proposals as per the requirements of Policy SD8 will need to conduct a more detailed, independent analysis to demonstrate compliance with the policy.

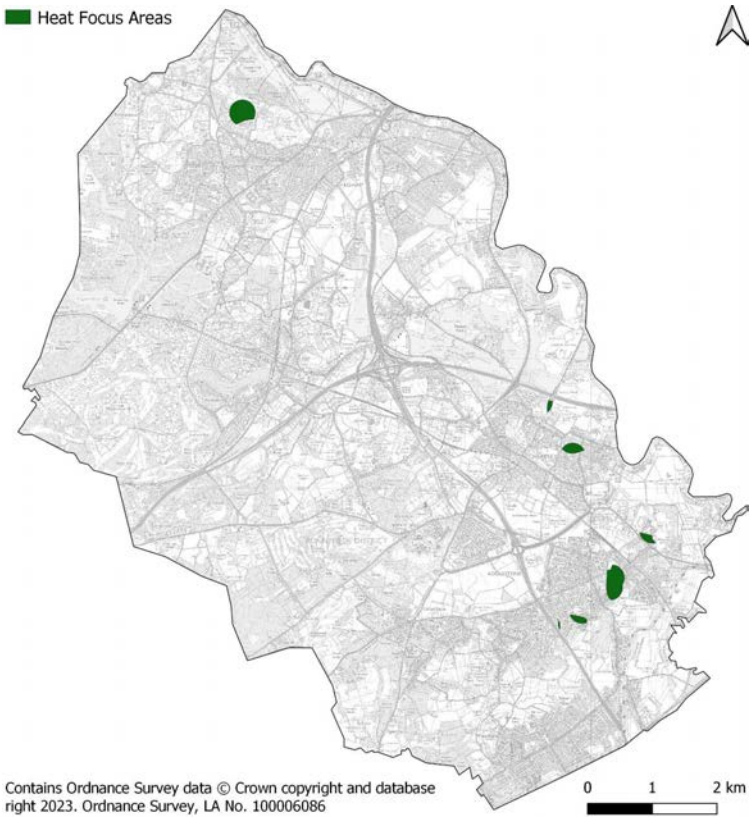


Figure 6: Heat focus areas in Runnymede (Source: Climate Change Study, December 2023).

Heat Supply Opportunities

6.17 Providing decentralised energy through fossil-fuel fired CHP for larger strategic sites is no longer considered fit-for-purpose. This is because CHPs using solid or liquid fuels are not considered to be a low carbon solution. The carbon savings from fossil (methane) gas CHP engines are now declining as a result of decarbonising the national grid electricity supply, and there is increasing evidence of adverse air quality impacts. Government projections for grid decarbonisation suggest that the carbon benefit of gas-fired CHP will cease by 2032. Given this trajectory, and a typical CHP design life of 15-20 years, the latest government analysis concludes that only CHP deployed before 2023 will deliver carbon savings during its lifetime.

6.18 Local sources of waste heat should also therefore be considered. There will be a number of sites or building types within the Borough that may be able to supply waste heat. At wider spatial scales, this can be sourced from a range of activities including industrial sites such as incinerators, power stations, landfill gas heat recovery, anaerobic digestion plants industrial thermal processes and waste water treatment works. Waste heat can also be supplied from sites such as data centre cooling facilities, cold stores and supermarkets.

6.19 The only potential waste heat opportunity within the heat focus area identified in Figure 6 above is Tesco Supermarket in Addlestone. In terms of potential for low or zero carbon heat supply, the findings were not exhaustive but existing opportunities identified, worthy of further investigation if relevant for new development proposals, include the Thames Waste Management anaerobic digestion sites in Thorpe and landfill gas site and anaerobic digestion in

Longcross. There may also be waste heat opportunities from commercial sites (such as data centres) and manufacturing which have not been fully investigated as part of the Study.

6.20 In theory, almost any location could source heat via heat pumps using ambient heat from either the ground, air or bodies of water. For example, the lakes at Thorpe may offer opportunities where suitable heat demands are located close by. In practice however, the scale of such systems would typically be limited to 1-2 MW heat supply capacity due to physical constraints at any one site. Another consideration when using heat pumps is the additional demand placed on the local energy supply needed to power the pump.

High Quality Networks

6.21 Where decentralised energy networks are proposed and accepted by the Council, the CIBSE Heat Networks Code of Practice[30] should be followed. Applicants will be expected to submit a statement confirming adherence to the Code of Practice and should clearly define and document within the energy statement where any of the standards in the Code are not to be included. Networks should actively be future-proofed and demonstrated ready to accept low or zero carbon energy generation sources at a later point.

6.22 Where a developer does not connect to a heat network, in a situation where it is technically feasible to do so, the Council may request a financial contribution to enable expansion of the network and possible future connection. This will be secured through a S106 agreement.

Heat Network Zoning Proposals

6.23 The Energy Act 2023 establishes a new regulatory framework for heat networks and grants the Secretary of State powers to introduce heat network zoning through secondary legislation ("zoning regulations"). The regulations will enable the government to create zoning bodies who will identify and designate heat network zones across the country. Regulations will also be able to specify which buildings are required to connect to a heat network, and which types of buildings in zones, including new buildings, should install communal heat networks.

6.24 Whilst heat network zones will not be dependent on planning functions and development plans, the Council will consider how a joined-up approach can be taken between heat network zoning and local plans. Until such a time as the regulations come into force and any new heat network zoning policy affects Runnymede, the requirements of Policy SD8 continue to apply.

[30] Available at: CP1 Heat networks: Code of Practice for the UK (2020) (pdf) | CIBSE

7. Use Renewable Energy (Be Green)

Our requirements to achieve a green development:

- At step 3 of applying the energy hierarchy, major development proposals should maximise opportunities to 'be green' by producing, storing and using renewable energy on-site.
- Development proposals of 1,000sqm or more of net additional floorspace to supply a *minimum* of 10% of the development's energy needs from renewable and/or low carbon technologies (expected to be on-site).
- Submit a noise impact assessment where an air source heat pump is proposed, and planning permission is required.
- Larger proposals (over 10,000sqm of net additional floorspace) should first consider connecting to an existing or future heat network (see Section 6 above for details).

Best practice guidance:

- Applicants for development at all scales should consider on-site renewable energy sources.
- Applicants of major development proposals are encouraged to demonstrate a higher percentage of the total energy demand is met by renewable energy (higher than 10%).
- The key renewable energy sources that will work in the context of the Borough are solar PVs and heat pumps.
- Applicants for minor developments are strongly encouraged to use heat pumps rather than fossil fuel heat.
- Introduce smart energy and water metering that will allow occupants to monitor their own consumption of energy and water.
- Use an energy use intensity metric based on kWh/m2/year to provide a more accurate reflection of actual energy consumption of a building, covering both regulated and unregulated energy. Aim to achieve the recommended targets in Section 8.

7.1 Once the earlier stages of the energy hierarchy have been followed *and energy demand has been reduced as far as possible*, for step 3 of the hierarchy applicants must decide which renewable and/or low carbon energy technologies will be used to supply the development's energy needs.

7.2 Policy SD8 requires major development proposals to supply a minimum of 10% of the development's energy needs from renewable and/or low carbon technologies unless it can be demonstrated with evidence that this is not feasible or viable. Non-major development proposals are strongly encouraged to consider on-site renewable energy sources wherever possible.

7.3 Options will need to be carefully considered taking into account their effectiveness for the particular development and any wider planning implications. In order to preserve air quality – particularly in the Borough's Air Quality Management Areas[31] - developers should look to prioritise the installation of technologies with no polluting emissions.

7.4 Renewable energy technologies or improvements to the fabric of Listed Buildings and buildings in Conservation Areas are also possible. Further guidance on historic buildings is provided in Section 9 below. On such schemes, a bespoke solution may be needed which can be worked on in conjunction with design and heritage officers. Where energy reduction targets cannot be

[31] Available to view at: Air quality – Runnymede Borough Council

met due to the designated status of a building, then the applicant will need to provide evidence that this is the case.

Demonstrating Compliance

7.5 The energy section of an energy and sustainability statement required for major developments must explain how step 3 of the energy hierarchy has been approached i.e. how the opportunities for producing, storing and using renewable energy on-site will be maximised. The appraisal should consider all reasonable options for renewable and low carbon energy, assessing the feasibility and benefits of each in turn. Decision-makers will need this information in order to confirm that the most effective and appropriate energy technology has been selected.

7.6 Appendix 2 sets out in detail how the percentage of energy demand generated through the provision of renewable and/or low carbon technologies should be presented in an energy statement, to demonstrate that the minimum 10% target will be achieved (and preferably exceeded).

7.7 The types of technologies which can be incorporated into a scheme in order to meet the 10% target are not prescriptive, but in deciding which types of technology should be used, the following factors should be borne in mind:

- the ability to provide *at least* 10% of a development's energy demand after energy efficiency measures have been incorporated. Whilst not an explicit requirement of Policy SD8, it is possible to achieve an improvement on Building Regulations from energy efficiency measures alone, and this will reduce the target level of renewable and/or low carbon energy that will need to be generated within the development;
- the ability to be integrated satisfactorily into the development taking into account Local Plan requirements including design, amenity, conservation etc;
- the cost effectiveness of the technologies taking into account development life-time costs.

7.8 Factors such as site layout, building design and orientation all impact on energy efficiency and generating renewable energy. If these are addressed early on, there will be a wider range of options that are possible, and the solution is likely to be more cost effective. For example, solar thermal units are most effective on south-facing roof slopes.

7.9 For full planning (and reserved matters) applications, the energy statement should include (or signpost) detailed information on the location of the selected technology. This could be in the form of the layout plan (e.g. to indicate location of a plant room), floor and roof plans and elevations (e.g. to indicate suitable roof area for installing solar technologies and to help determine visual impact).

7.10 Developers should present the results for new and refurbished areas and residential and non-residential areas separately due to their differing energy needs and means of assessment.

7.11 Applicants should provide copies of any Building Regulation Part L design-stage output reports in energy statement appendices, to support the savings claimed. For non-residential schemes, this means the full Building Regulation UK Part L documents; for residential schemes it means the full Dwelling Emission Rate (DER) and Target Emission Rate (TER) calculation worksheets from the Standard Assessment Procedure (SAP) (or any future modelling equivalent).

7.12 For non-residential schemes which are choosing to pursue a BREEAM assessment, the energy statement can cross-reference the relevant BREEAM pre-assessment report. The full 'BREEAM Low and Zero Carbon Feasibility Report' can be submitted alongside the energy statement as a

means of demonstrating that the inclusion of renewable and/or low carbon technologies has been comprehensively considered.

7.13 Where it has not been possible to reach the targets in Policy SD8, a clear design-based explanation should be provided which looks at options tested and provides a clear rationale for why targets cannot be met.

Noise Impacts

7.14 If installation of an air source heat pump (ASHP) requires planning permission[32], or if ASHPs are being proposed as part of the energy strategy for new development proposals, planning conditions will be attached to any approval to ensure unacceptable adverse noise impacts on future and neighbouring occupants are avoided. Any noise surveys must be undertaken in accordance with BS 4142 or such other standard acceptable to the Local Planning Authority.

Potential Technologies - Solar PV Renewable Energy Generation)

7.15 Detailed guidance about the use of solar PV panels in new homes is provided on pages 26-27 of the Council's Net Zero Carbon Toolkit.

7.16 Matters to consider include:

- Solar PV works best in full sunlight so consider the positioning on the roof. The optimum installation is east-west facing at a 0-30 degree angle of inclination (or horizontal to the roof). This allows the maximum density of solar panel area to be fit in the available roof area, in order to capture maximum solar energy.
- While PV may be constrained in Conservation Areas or on listed buildings, it is still typically possible to integrate PV where it is not visually prominent from street level (see Section 9 below).
- Consider if there is any shading from nearby buildings or trees.
- Consider the movement of the sun throughout the day and over the year. Overshadowing can impact on the overall performance.
- Proposals should maximise solar availability through their massing and roof design and by selecting heating solutions that limit competition for roof space

East/West facing concertina type solar arrays are usually the best solution for the flat roofs of blocks of flats. They generate less energy per panel than rows of south facing panels, but achieve much higher panel densities as they do not require large gaps between the rows to avoid interrow shading. (Source: K2 Systems)

South facing solar facades produce around 15% less energy than an East/West concertina array, but generate more electricity than an East/West array in winter months. For buildings with heat pumps, this can be a great match. (Source: Solarbuildingtech.com)

Figure 7: Considerations for solar PV technology, taken from the Council's Net Zero Carbon Toolkit.

[32] Installation of an ASHP in a domestic premises is considered to be permitted development provided the installation complies with the Microgeneration Certification Scheme planning standards (MC20) or equivalent. If the noise from an ASHP is causing a statutory nuisance, despite meeting the MC20 standards, the Council has a duty in law to take action to try and abate the nuisance.

(for example use of ground source heat pumps in place of air source heat pumps where feasible).

- There are increasingly recognised design solutions that can address competing requirements for accessible roofs or provision of green roofs alongside PV. Bio-solar roofs (where PV panels are installed on top of green roofs) are welcome as they incorporate the biodiversity benefits of a green roof combined with the generation of energy. However, designs must ensure that the planting does not shade the panels.
- Use of battery storage (batteries can be used to store the electricity generated for use later when it is needed) can help to maximise the proportion of generated electricity from solar PV that can be used on-site and reduce wider constraints in terms of connection to the distribution network. This is expected to make a further contribution as the costs of storage reduce.

Solar Water Heating Systems/Solar Thermal Systems (Renewable Heating)

7.17 Solar thermal is a system made of flat plate collectors or tubes which allow water to flow through and be heated by the sun's rays. A solar water heating system has three main steps: first, sunlight is captured by solar collectors outside, heating liquid inside the collector. Second, heat from the liquid is transferred into hot water. Third, the heated water is stored in an insulated tank until it is needed.

7.18 Matters to consider include:

- Solar Thermal is an appropriate technology for buildings where there is a year round hot water demand such as a residential development and leisure centres.
- Positioning these on south facing roofs at an angle of 30-40 degrees is best but they do not rely on direct sunlight and can still be efficient at other angles.
- Additional weight must be considered when fitting to existing roofs.
- Solar thermal may not be sufficient by itself to meet the hot water demand and an additional heat generating technology is invariably required to meet peak loads and instances when solar energy is low in winter months.
- While more difficult to integrate into development than solar PV, solar water heating systems can meet 50 per cent of the hot water demands in residential properties.

Heat Pumps (Renewable Heating)

7.19 The government envisages that heat pumps (alongside heat distribution networks) will be the principal means of providing heat for buildings once the new 'Future Homes and Buildings Standards' are fully implemented, and expects that supply chains for these technologies to develop swiftly in the next few years.

7.20 There are two main types – air-source (ASHP) and ground-source (GSHP) heat pumps. An ASHP extracts warmth from the air, it is a box that can be stand alone or fixed to an exterior wall or roof. A GSHP requires generous outside space and is buried under the soil. Larger scale heat pumps, suitable for heat networks, have a higher coefficient of performance (heat to electricity ratio) than smaller units typically used in individual buildings. In the longer-term, heat pumps are considered to be effective both in reducing emissions as well as becoming more affordable. Therefore, applicants for both minor and major developments are strongly

encouraged to use heat pumps rather than fossil fuel heat. This will be highly beneficial to both lifetime carbon saving as well as improving air quality.

7.21 There are lots of heat pumps available. Further guidance on the design, commissioning and operation of heat pumps is provided on pages 22-24 of the Council's Net Zero Carbon Toolkit.

7.22 Matters to consider include:

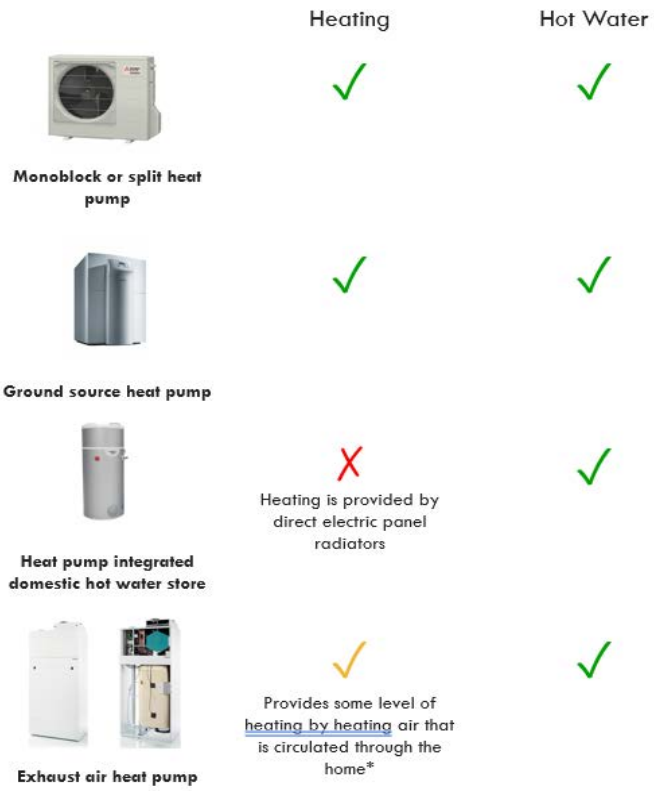


Figure 8: Extract from the Council's Net Zero Carbon Toolkit showing four types of individual heat pumps that can be installed in new homes (Sources: Valliant, Mitsubishi Electric, Nilan, Dimplex).

- Heat pumps work best when producing heat at a lower temperature than traditional boilers – it is essential that buildings that rely on heat pumps are built to high levels of energy efficiency (well insulated and draught-proof) in order for the heating system to be efficient, both in terms of cost and energy use.
- As heat pumps provide heat efficiently at lower temperatures, they should be paired with low temperature heating systems such as underfloor heating systems, which usually have a flow temperature of 35°C compared to <70°C demanded by gas boiler-fed radiators. If underfloor heating is not feasible/viable, then large radiators should be installed.
- Broadly speaking, ASHPs are usually more practical to install than GSHPs.
- Heat pumps are significantly cheaper to operate than direct electric heating.
- Make sure that the heat pump is sized correctly to meet the heating and hot water load.
- Choose a heat pump with a refrigerant that has a low Global Warming Potential (GWP).
- For ultra-low energy homes, heat pumps can provide the majority of the heating, but direct electric panel radiators may be needed for peak winter conditions for additional comfort.
- The potential noise and visual impact of ASHPs will need to be mitigated through careful design. Be mindful that the Council will require the submission of acoustic data to demonstrate that the ASHP does not give rise to unacceptable adverse noise impacts on future or neighbouring occupants. See 'Noise Impacts' section above.
- Ensure the chosen heat pump complies with the minimum performance standards as set out in the Enhanced Capital Allowances (ECA) product criteria for the relevant ASHP technology as well as complying with other relevant issues as outlined in the Microgeneration Certification Scheme Heat Pump Product Certification Requirements document at: MCS Certified | Giving you confidence in home-grown energy.

Biomass (Renewable Heating)

7.23 Creating heat form direct combustion of biomass may be appropriate in some locations of the Borough, usually where there are local sources of agricultural, forestry or industrial biomass waste suitable for burning. However, the carbon impact of transporting the biomass fuel must be considered when specifying this technology, as must the localised impact on air quality from

transport and combustion. Applicants proposing such systems must demonstrate in their energy statements how any adverse impacts will be made acceptable.

Wind Power (Renewable Energy Generation)

7.24 Wind turbines generate renewable electricity by harnessing energy from wind. The amount of electricity that a wind turbine can generate is dependent on the wind speed of the site and the size of the turbine. In general, the potential for incorporating wind turbines in urban environments is limited due to low average wind speeds and turbulence caused by neighbouring buildings. For building integrated wind turbines there are also planning restrictions on height that will limit the potential power output of the system, and further restrictions may also apply for developments in conservation areas of the Borough or those that include listed buildings. As such the potential for significant CO^2 emission savings through integrating wind turbines is considered to be very limited in the Borough.

Smart Metering

7.25 Applicants are encouraged to introduce smart energy metering that will allow occupants to monitor their own consumption of energy. These devices help raise awareness of how occupants use electricity, and the impacts of this. The Net Zero Carbon Toolkit also offers further guidance on the use of smart controls and demand flexibility on p28.

7.26 The ability to install smart meters makes housing stock 'flexibility ready', as they enable access to smart energy tariffs which are increasingly in demand and reward households for shifting their energy use away from peak periods. The Government has produced guidance[33] for builders, architects and all those involved in the specification of metering locations in new build premises, especially multiple dwelling units. The Council encourages applicants to consider this guidance, which is due to be updated shortly[34], to ensure successful installation and operation of smart meters.

Smart controls and demand response measures in the home (Source: SMA Solar UK)

Grid Capacity Constraints and Battery Energy Storage Systems

7.27 For any renewable energy project, early discussion with the District Network Operator (DNO) may need to take place, as in some locations the local electrical grid may have limited capacity for connection and exports (excess energy exported to grid when the development isn't using the energy being producing). In Runnymede, there are two DNOs covering different parts of the Borough:

- SSEN covers the north of the Borough: Network Maps (ssen.co.uk)
- UK Power Networks covers the south of the Borough: Network Infrastructure and Usage Map (NIUM) — UK Power Networks (opendatasoft.com)

[33] Department for Energy Security and Net Zero and Department for Business, Energy & Industrial Strategy, 'Smart meter installation in domestic new-build premises' (23 November 2020 or any future equivalent), available at: Smart meter installation in domestic new build premises - GOV.UK (www.gov.uk)
[34] Updates to the guidance are proposed as part of the Future Homes and Buildings Standards 2023 consultation.

7.28 The need to export energy generated on site can be solved with local energy storage. In the case of surplus heat energy, thermal stores could be used to store energy. Using energy storage can allow consumers to meet peak demand with stored energy or could reduce operational energy costs during times of the day when energy costs peak.

7.29 To facilitate this, new buildings should be supplied via a three-phase power supply unless this is not feasible or viable.

7.30 A three-phase system makes it more straightforward to install heat pumps, photovoltaic panels and electric car-charging systems, as the electrical demand is spread across the three-phases. Installing a three-phase supply allows homes to be future-proofed and supports future adaptability of buildings.

7.31 The Council's Climate Change Study identifies energy storage technology, particularly batteries, as being well placed to help alleviate the constraints that currently limit connections to the National Grid. Battery Energy Storage Systems (BEES) provide enhanced energy resilience for the National Grid and directly support the development of new energy-generated facilities which will increasingly be delivered from renewable energy sources.

7.32 Whilst BEES do not constitute renewable energy/low carbon energy projects per se, proposals for BEES will be considered under the requirements of Policy SD8 as they constitute low carbon energy-associated infrastructure. As such, the impacts of any proposed BEES to local amenity and to the built, natural and historic environment will be assessed in a similar way to stand-alone energy projects. The cumulative impacts of any existing BEES development will also be considered.

7.33 Where planning permission is being sought for development of BEES of 1MWh or over, and excluding where BEES are associated with a residential dwelling, applicants are encouraged to engage with appropriate infrastructure providers at an early stage in the design of such schemes, as well as Surrey Fire and Rescue Service before submitting an application. This is so matters relating to the siting and location of BEES[35] can be considered before an application is made. The Council will also consult with the Service on any relevant applications as part of the formal consultation process.

7.34 Planning conditions/legal obligations may be used to seek the submission of risk management and emergency response plans; and to make sure that the installations are removed when no longer in use and the land is restored to its previous condition. Such plans should include:

- the responsible party for decommissioning;
- a disposal plan for all solid and hazardous waste including proposed receiving waste facility/facilities;
- information detailing how a decommissioning fund structure has been set up with a funding timeline (with the fund preferably held by a third party);
- evidenced cost estimates for site decommissioning;
- a clear outline of how the decommissioning fund will be kept current and up to date; and
- an evidenced timeline for facility decommissioning and site restoration.

Stand-alone Renewable Energy Schemes

7.35 RBC strongly encourages applicants to engage early with the Council to seek pre-application advice ahead of submitting a planning application or Development Consent Order for stand-

[35] Such as in the event of an incident, prevention of the impact of thermal runway, and emergency services access. Further details are available in the National Planning Practice Guidance: Renewable and low carbon energy - GOV.UK (www.gov.uk).

alone projects such as hydropower, solar farms, wind farms and battery energy storage systems. Further information on how to access pre-application advice can be found at: Pre-application advice – Runnymede Borough Council.

7.36 The National Planning Practice Guidance[36] sets out particular planning considerations for hydropower, active solar technology, solar farms, wind farms and battery energy storage systems that will be taken into account in decision-making, and which the Council recommends applicants take account of early in the design process.

[36] Available at: www.gov.uk/guidance/renewable-and-low-carbon-energy#particular-planning-considerations-for-hydropower-active-solar-technology-solar-farms-and-wind-turbines

8. Towards Net Zero Carbon

8.1 Although the 2030 Local Plan does not contain net zero policy requirements for new development, applying the energy hierarchy to its fullest extent would ultimately lead to the delivery of a net zero carbon building. Applicants are strongly encouraged to work towards net zero carbon buildings in operation, using the recommended operational targets for new buildings set out in the Council's Toolkit, and the LETI Climate Emergency Design Guide[37]. This is achieved when the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative.

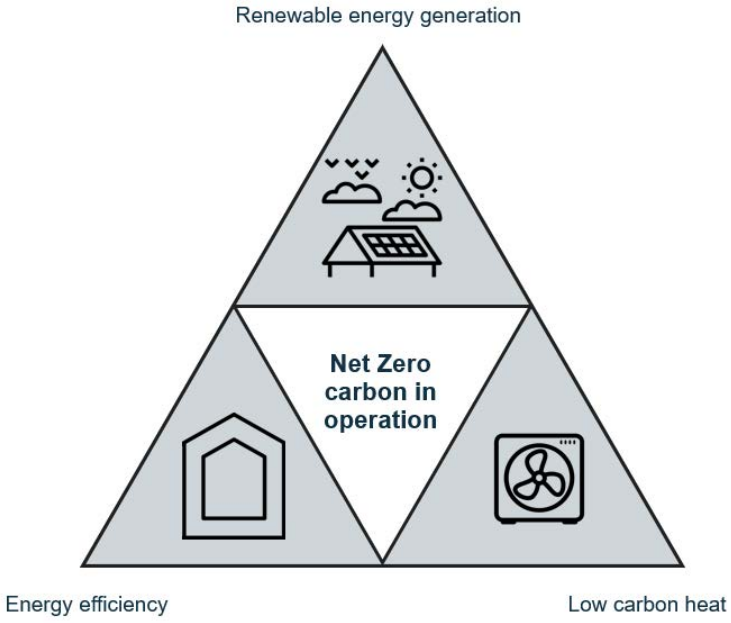


Figure 9: The three pillars of a net zero carbon building in operation (Source: Net Zero Carbon Toolkit)

8.2 In February 2024, the Council adopted the Net Zero Carbon Toolkit, setting out its aspirations for new housing development to work towards net zero standards. Whilst the focus is on housing, the principles apply equally to other uses.

8.3 The three core principles of buildings that are net zero in operation are energy efficiency, low carbon heat and the use of renewable energy (see Figure 9). Buildings should also minimise carbon emissions from materials production and construction processes to be fully net zero ('embodied carbon').

8.4 A new building with net zero operational carbon does not burn fossil fuels, is 100% powered by renewable energy, and achieves a level of energy performance in-use which will better achieve our national net zero targets.

Recommended Targets

8.5 The key performance indicators recommended in the Toolkit for new and retrofitted homes are set out in Figure 10.

	KPIs New housing	KPIs Retrofit housing
Ultra low energy homes	Space heating demand 15 kWh/m²/yr	Space heating demand 50 kWh/m²/yr* *on average (range of 20-120 kWh/m²/yr)
Energy use and efficient heating	Energy Use Intensity 35 kWh/m²/yr	Energy Use Intensity 50 kWh/m²/yr *on average
Renewable energy	Electricity generation intensity 120 kWh/m²fp/yr m²fp : m² building footprint	Electricity generation intensity 120 kWh/m²fp/yr m²fp : m² building footprint

Figure 10: Operational targets for new homes and retrofit housing as suggested in the Net Zero Carbon Toolkit

8.6 Energy Use Intensity is the total annual energy consumption of a building, with no distinction made between 'regulated' and 'unregulated' energy (unlike Building Regulations metrics). As it is measured in kWh/m^2/year, it can be estimated at design stage and is displayed on energy bills

[37] Available at: Climate Emergency Design Guide | LETI

so building users will be able to easily verify how the building is performing. It relies only on how the building performs, rather than taking into account the carbon factor of the grid. The Toolkit argues that it should be the metric used across planning and design decisions because of this.

8.7 The energy use targets and key performance indicators used in the Toolkit are considered to be more transparent and robust than carbon reduction targets used in Building Regulations, and are the best way to ensure zero carbon is delivered in practice (see Figure 11 below). However, it is of course important that new buildings also comply with all Building Regulations requirements.

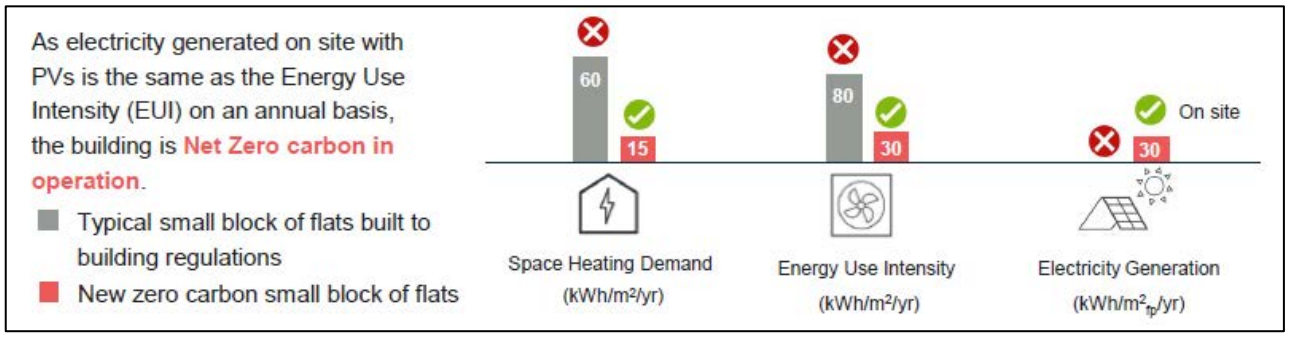


Figure 11: The Net Zero Carbon Toolkit illustrates how different housing typologies can achieve net zero carbon in operation, over and above Building Regulations compliance.

8.8 The Toolkit signposts LETI's Climate Emergency Design Guide for further guidance on net zero carbon targets for other building types such as schools, hotels, offices and light industrial schemes.

8.9 The Council does not currently support carbon offsetting as a means to deliver zero carbon projects as the carbon offset fund infrastructure is not in place. However, if all other emissions have been minimised and there is no technological means for applicants to achieve their zero carbon in operation targets, Council officers can discuss options that may be available to assist.

9. Retrofitting Existing Buildings

Our requirements for existing buildings where works require planning permission:

- Major refurbishment proposals to apply the energy hierarchy and, for developments resulting in 1,000sqm net additional floorspace, supply a minimum 10% of energy needs through renewable/low carbon energy technologies.
- Large-scale refurbishment proposals[38] to consider decentralised sources of energy.
- Minor redevelopment proposals and householder retrofit proposals which require planning permission or listed building consent to demonstrate how energy and sustainable design considerations have been addressed having regard to Policies SD7 and SD8. Information submitted in support of the application should show how measures have been incorporated into the scheme.
- Check if a property is a listed building, in a Conservation Area, or if there are any other restrictions such as Non-Designated Heritage Asset (NDHA) status. Where proposals might affect a listed or Conservation Area building, or NDHA, the heritage significance, including any contribution made by the building's setting, should be identified via a heritage statement (see validation checklist for further details).

Best practice guidance:

- Apply the energy hierarchy for all refurbishment and retrofit projects – a 'fabric first' approach should be taken.
- Sensitive retrofitting of historic and other traditionally constructed buildings should be able to secure some improvements in energy efficiency, and these should be delivered in whole-building refurbishment schemes.
- Use third-party assessment schemes such as BREEAM Refurbishment and Fit Out, Passivhaus, EnerPHit, and Energiesprong, and provide proof of certification to demonstrate compliance.

9.1 With roughly 80% of the predicted building stock for 2050 already in existence today, there is a pressing need, and opportunity, to retrofit existing buildings to use energy more efficiently. Whilst decarbonising buildings is important to mitigate climate change, there are other benefits to retrofitting, including reduced energy bills and increased thermal comfort (both in summer and winter).

9.2 Some improvement works may be 'permitted development' (PD) with no need to apply for planning permission. There are, however, important limits and considerations which must be met to benefit from these PD rights. The Planning Portal provides further guidance in its 'common projects' section, including for the installation of heat pumps, solar panels and other energy saving measures.

9.3 Where energy saving works do require planning permission, or where refurbishment works provide opportunities for making energy improvements (for example, a new extension could trigger the improvement of the existing home), the Council will provide coordinated advice to ensure consistency between energy, design and any heritage matters. To request pre-application advice, please visit: Pre-application advice – Runnymede Borough Council.

[38] Resulting in 10,000sqm or more of net additional floorspace.

9.4 In accordance with the principles set out in Policy SD8, retrofit schemes can apply the energy hierarchy in a similar way to that of new-build schemes. Applicants should aim to:

- **Reduce energy demand by upgrading existing buildings** – pursue a 'fabric first' retrofit. Consider improving insulation and thermal bridging, upgrading windows, damp proofing historic buildings, upgrading services and gas boilers, improving passive ventilation, installing low energy light fittings, and installing heating controls to help reduce heat demand as far as possible before introducing new energy systems.
- **Supply energy efficiently through heat networks** – as with new-build proposals, the potential for retrofitting schemes to connect to a heat network will be dependent on the availability of such networks in the area. See Section 6 of the SPD for further details.
- **Make use of renewable energy** – of all the options available, solar PV panels are likely to be the most easily adapted to use on existing buildings, including listed buildings and buildings in Conservation Areas (but these projects need to be handled with care – see 'Works Affecting Heritage Assets' below).

9.5 The Council's Net Zero Carbon Toolkit provides extensive guidance for those carrying out a housing retrofit scheme. The principles apply to many different retrofit projects, not just those aiming for net zero carbon standards. Advice includes:

- The importance of a 'whole house' approach – consider improvements to the fabric, services, and renewable energy generation in a coherent way rather than as individual elements;
- Key retrofit risks and how to mitigate them e.g. avoiding cold, damp, mould and condensation;
- Heritage buildings and Conservation Areas (see also relevant guidance below);
- Opportunities to consider when extending a home;
- Identifying low carbon heating options;
- Guidance on upgrading windows, insulating walls, insulating floors and roofs, tackling thermal bridges and junctions, airtightness, and ventilation;
- Reducing overall water consumption and reducing hot water to reduce energy use;
- Retrofitting solar PVs;
- Smart controls and demand response to bring about flexibility in energy use;
- Indicative costs of retrofit projects;
- How to achieve low embodied carbon design in a retrofit project;
- How it all comes together, for a typical terrace house and a terrace house in a conservation area;
- A description of available retrofit standards, including EnerPHit, Energiesprong and PAS 2035.

Change of Use Developments

9.6 There are likely to be opportunities for significant retrofit improvements where buildings are converted from one use to another (e.g. from commercial to residential). Many such projects do not require planning permission from the Council. However, the Council strongly encourages change of use developments to fully explore opportunities to deliver energy efficient and sustainable buildings.

9.7 Where change of use requires a planning application, proposals will be required to comply with the policy and guidance set out in the Local Plan and this SPD.

Works Affecting Heritage Assets

9.8 Because listed buildings and buildings in Conservation Areas are nationally protected, this means that legally they have to be approached differently from other buildings when considering which energy reduction and renewable energy measures might be appropriate. An objective of the 2030 Local Plan is to protect and enhance the Borough's heritage assets, both designated and non-designated[39], and it is therefore vital that works to improve energy efficiency are consistent with this aim.

9.9 The installation of renewable energy technologies or improvements to the fabric of heritage assets are not automatically prohibited but change and adaptation to the Borough's heritage assets may need to be carried out in more sensitive way.

9.10 Any impacts on the historic environment will be assessed under the relevant policies of the 2030 Local Plan, and where conflict between climate change objectives and the conservation of heritage assets is unavoidable, the public benefit of mitigating the effects of climate change will be weighed against any harm to the significance of the heritage asset(s).

9.11 One of the most important steps for applicants is therefore to identify the heritage value and identify suitable interventions. The Council's Design SPD states that where heritage assets may be affected by development, applicants should assess their significance at an early stage and make sure the findings feed into the design concept and design proposals. Historic England has produced a Good Practice Advice Note setting out more information on how to do this.

9.12 Further detailed guidance is available to help applicants decide which improvements might be appropriate:

- Historic England's 'Energy Efficiency and Historic Buildings: How to Improve Energy Efficiency' (2018 and any future update), including separate guidance on using low and zero carbon technologies, and on installing solar PV on historic buildings or on the land of a historic site;
- Historic England's Energy Efficiency and Traditional Homes Advice Note (2020 and any future update);
- Sustainable Traditional Buildings Alliance's guidance on developing a whole-building sustainability strategy, and the Responsible Retrofit Wheel.

9.13 Planning permission and/or listed building consent may be required for certain works and advice should be sought where in doubt. The Council will work proactively with applicants to find solutions that deliver improvements while respecting the heritage value of historic assets.

Evidencing The Approach

9.14 Applicants should explain in design and access statements, or where submitted, in energy statements, how energy and sustainability measures have been incorporated into schemes. Sustainability and energy measures should also be addressed in any heritage statement, heritage impact assessment or similar document as applicable.

9.15 The nature and extent of the information required will depend on the individual proposal, but it is possible that once an application has been validated, further information may be required during the application to demonstrate, for example, that energy efficiency opportunities have been considered and any impacts have been assessed satisfactorily.

[39] Definitions can be found in the National Planning Practice Guidance: Historic environment - GOV.UK (www.gov.uk) and Historic environment - GOV.UK (www.gov.uk) respectively.

9.16 In demonstrating the energy and carbon performance standards which will be achieved, applicants should note that similar evidence will also be required to evidence compliance with Part L of the Building Regulations. Parts L1B and L2B of the Building Regulations require that when existing buildings are extended or renovated it is done in a way which means they use no more fuel and power than is reasonable in these circumstances. There is an exemption from this requirement for dwellings (L1B) and non-dwellings (L2B) which are listed buildings, Conservation Area buildings and scheduled ancient monuments if the energy efficiency requirements would unacceptably alter their character or appearance. Special considerations are also applied to non-designated historic buildings and buildings of traditional construction, where works to improve energy efficiency should not prejudice the character of the building or increase the risk of long-term deterioration of fabric or fittings. Nonetheless, the Council will encourage the highest standards of energy conservation that can be achieved within these limits.

9.17 Approved documents LB1 and LB2 set out the calculations that need to be made in order to understand whether any improvements have been achieved. Advice on the application of these can be found on the Planning Portal website, or from the Council's Building Control Service or other approved inspector. Detailed guidance is available on Historic England's website on resolving conflicts between the requirements of Part L and the conservation of historic buildings.

9.18 If applicants choose to take part in a third-party assessment scheme (e.g. BREEAM Refurbishment and Fit Out, Passivhaus, EnerPHit, Energiesprong), then proof of certification should be provided.

Appendix 1: Energy and Sustainable Design Questionnaire

When should this questionnaire be used?

This questionnaire is for minor developments (developments from one to nine residential units and one to 999 square meters of non-residential floor space) and householder developments involving new elements in existing dwellings, including replacing a fabric element and constructing an extension.

Developments of a scale above these thresholds (major developments) should not use the questionnaire, but should instead submit an Energy and Sustainability Statement. See Policy SD7: Sustainable Design, Policy SD8: Renewable & Low Carbon Energy, and the Energy & Climate Change Mitigation Supplementary Planning Document (the 'SPD') for more information.

What is the purpose of this questionnaire?

The Council requires minor developments to submit information proportionate to the size of the development about how the development complies with sustainable design and energy matters. These requirements will have been deemed to have been met if a correctly completed questionnaire is submitted.

The questions in the questionnaire are based on requirements set out in the Runnymede 2030 Local Plan policies, and you should refer to these, as well as guidance in the Energy & Climate Change Mitigation SPD, to complete the questionnaire effectively.

The questionnaire is not an exhaustive list of sustainability matters and additions to the questionnaire are welcome.

Further details about what you need to submit alongside this form, and about what happens next after an application has been submitted, are provided on the Council's website. If planning permission is granted, conditions may be applied requiring work to be carried out in accordance with the information submitted via the questionnaire. It is therefore important that the questionnaire is completed in good faith and any works identified within it are deliverable.

Part 1: Applicant Details

Applicant's name:

Agent's name:

Site address:

Application reference (if known, e.g. RU.24/XXXX):

Description of proposal (e.g. total and types of units/floorspace):

Questionnaire prepared by (name and qualification/job title):

Signature of above:

Energy information prepared by (name and qualification/job title):

Signature of above:

Date:

Part 2: Energy & Sustainable Design Questions

1. Incorporation of measures for the secure storage of cycles and storage of waste, including recyclable waste (Policy SD7(a)). See the Council's Parking Guidance SPD for cycle space standards, and Surrey County Council's Healthy Streets Design Code for cycling storage design considerations.

   1.a. Has the size and location of secure recycling and waste facilities, both for storage and collection, been factored into the design of the scheme?

   1.b. Where new cycle parking is required, has provision been made for the secure storage of cycles, and has this been clearly shown on the site plans? Have you considered providing charging points for e-bikes?

2. Protection of existing biodiversity and inclusion of measures to achieve net gains in biodiversity as well as greening of the urban environment (Policy SD7(b)). Refer the Council's Green and Blue Infrastructure SPD for further guidance, including extensive guidance for householders. Separate

information should be submitted for all developments subject to Biodiversity Net Gain requirements, but where developments are exempt, the following question should be answered:

2.a. Has it been demonstrated through a proportionate biodiversity enhancement statement that the proposals will protect existing biodiversity and deliver net gains in biodiversity (including how enhancements will be managed/maintained)?

3. Passive design: maximising opportunities for passive solar gain and passive cooling through the orientation, layout, massing and landscaping of development (Policy SD7(c)). See Section 5 of the Energy & Climate Change Mitigation SPD on 'Reduce energy demand (be lean)'.

3.a. Has the layout of the site, landscaping and orientation of buildings taken into account solar receipts and other environmental factors to reduce the need for mechanical heating and artificial lighting in the development? Please provide details, including a description of any constraints.

3.b. Will the internal layout of buildings make best use of solar gain and natural light? Please provide details, including a description of any constraints.

3.c. Will passive cooling/ventilation measures be incorporated into the scheme? Please provide details, including a description of any constraints.

3.d. Will the scheme include mechanical cooling (e.g. air conditioning)? If so, please explain why passive measures would not be adequate.

4. Maximising electric vehicle (EV) charging opportunities (Policy SD7(d)). See the Council's Parking Guidance SPD for EV parking standards, which incorporates Surrey County Councils standards, and Surrey County Council's Health Streets Design Code on the design of EV infrastructure.

4.a. Where car parking is provided, has provision been made for EV charging in accordance with the Council's parking standards?

4.b. Has EV equipment and its proposed location been provided in accordance with advice in the Healthy Streets Design Code?

5. Optimising water efficiency (Policy SD7(e)). See Approved Document G for further guidance on achieving the standards (referred to as the 'optional requirement' in Part G of Schedule 1 and regulation 36(2)(b) to the Building Regulations).

5.a. If the scheme involves new dwellings (including through replacements, conversions and/or sub-divisions), will these be designed so estimated consumption of wholesome water does not exceed 110/litres/person/day (calculated in accordance with the methodology in the water efficiency calculator)? The relevant water efficiency calculations should be submitted to the Council prior to occupation.

5.b. For all developments, will water harvesting measures be incorporated into the scheme? Please provide details.

6. Efficient use of minerals, use of recycled or secondary aggregates, waste minimisation and reuse of material from excavation and demolition (Policy SD7(g)).

6.a. Will the use of primary minerals be minimised through e.g. the use of renewable materials, recycled and secondary aggregates, and other recycled and reused materials? Please provide details.

6.b. Will demolition/excavation material from the proposed works be reused on site? Please provide details of where material will be derived and where it will be used.

6.c. Will unused mineral waste be sent for reuse or recycling? Please provide details.

6.d. Will non-mineral construction waste (e.g. packaging, timber, plastics) be minimised? Please provide details.

6.e. Will locally sourced materials be used? Please provide details.

6.f. Will materials be sustainably sourced (e.g. FSC certified timber)? Please provide details.

7. Low and zero carbon design: using less energy, supply energy efficiently and using low carbon/renewable energy technologies (Policy SD8). Refer to the guidance in this Energy & Climate Change Mitigation SPD, and to the Council's Net Zero Carbon Toolkit if targeting zero carbon standards.

7.a. As well as the passive measures in Question 3, have you considered using active measures to reduce energy demand e.g. through highly efficient fabric (materials used in walls, floors, roofs, windows and doors), high efficiency lighting? Please provide details.

7.b. Once energy demand has been reduced as far as possible, have you considered how to supply energy efficiently e.g. using communal low-temperature heating systems served by heat pumps? Please provide details.

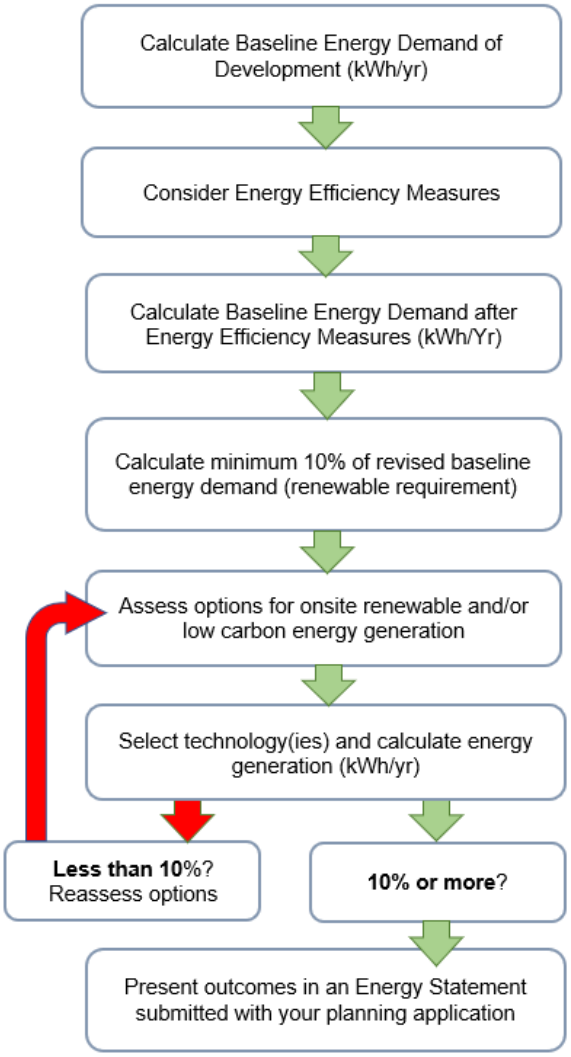
7.c. Once energy demand has been reduced as far as possible, have you considered meeting the remaining energy needs through the use of on-site renewable technologies e.g. solar PVs and heat pumps? Please provide details on type and location of technology(s), including any visual information to show how the technology(s) will be successfully integrated into the development.

7.d. Where air source heat pumps are proposed, have you demonstrated how any adverse impacts on residential amenity (e.g. noise/visual impacts) can be mitigated?

8. Any further information: please provide information about any other sustainable design and energy/carbon emission reduction measures that will be incorporated into the scheme.

Appendix 2: Calculating the percentage of energy demand generated through the provision of renewable and/or low carbon technologies at step 3 of the energy hierarchy

The following figure shows a simple process that should be followed to meet the **minimum** renewable energy target in Policy SD8:



A. Calculate the baseline energy consumption of the development

The total energy demand for the development (baseline) figure is considered to be the regulated energy i.e. the energy consumed by building services for space heating/cooling and hot-water systems, ventilation and internal lighting.

It should be noted that amended Building Regulations and accompanying Approved Documents L: Volumes 1 (Dwellings) and 2 (Buildings other than dwellings) came into force on 15 June 2022. A new Part O 2021 was also introduced, updating requirements to tackle overheating.

Whilst carbon emissions are appropriate for various Building Regulations calculations, Policy SD8 is related to energy usage.

Separate calculations may be necessary for schemes involving new and refurbished areas and residential and non-residential areas.

B. Consider energy efficiency measures

Describe and calculate the impact of energy efficiency measures that have been incorporated into the design to make improvements which at a minimum meet Part L Building Regulations (as set out in the 2021 edition of Approved Document L, or any future equivalent). Energy efficiency measures aimed at reducing energy consumption over and above Part L Building Regulations cannot count towards achieving the 'at least 10%' amount required by Policy SD8.

It is important to recognise that *the greater the energy efficiency, the lower the energy usage and associated carbon emissions. This will reduce the target level of renewable and/or low carbon energy that will need to be generated within the development*.

C. Calculate the 'actual' predicted energy demand for the development

This is the predicted energy consumption of the entire development, taking into account additional energy efficiency measures (measured in kWh/yr).

D. Calculate the amount of renewable and/or low carbon energy to be generated to meet the minimum requirement

The calculation should be undertaken as follows:

Total estimated energy use 'minus' allowances for energy efficient measures = Baseline energy.

Baseline x 0.1 = 10% requirement for renewable and/or low carbon technologies (this should be treated as the minimum requirement).

The 10% is a rolling target and applies to calculations associated with any amended Building Regulations. However, this note will be revisited once the Government's Future Homes and Buildings Standard is introduced (anticipated to be 2025).

E. Assess the feasibility of using different energy technologies for the development and calculate the energy generation saving potential of so doing.

Once the minimum 10% requirement has been calculated, investigate which decentralised, renewable or low carbon technology is suitable for the site. This can either be one or a range of different technologies.

E. Check the energy savings of the preferred approach

Check whether selected technology(ies) supply at least 10% of the development's energy needs. If the figure is less than 10%, reassess the preferred approach, or demonstrate with evidence that the requirement is not feasible or viable.

F. Demonstrate compliance clearly in the Energy Statement

Compliance should be presented in a clear and simple way, ideally in a table. It should be clear what the energy requirements of the development would be, the chosen renewable and/or low carbon technologies, how much energy would be generated from renewable energy sources, and the percentage of how much of the required energy for the development would be generated by the technologies.

An example is displayed below:

Baseline energy consumption of development (or building)	Proposed level of energy generated from renewable methods	Proposed net reduction in energy consumption of development	Percentage energy requirement for development generated by renewable/low carbon methods
45,000 kWh/yr	15,000 kWh/yr	30,000 kWh/yr	33%

Appendix 3: Matters to be addressed in the sustainability section of an Energy and Sustainability Statement

- How cycles and waste will be stored securely, in accordance with criterion a) of Policy SD7.
- Measures taken to identify and protect existing biodiversity and achieve net gains in biodiversity as well as greening of the urban environment, in accordance with criterion b) of Policy SD7. The statement can signpost other relevant submission documents such as a biodiversity net gain plan. Greening of the urban environment might include climate change adaptation measures such as sustainable urban drainage systems to manage surface-water drainage, or the enhancement of green and blue infrastructure to provide opportunities for cooling.
- Where not already covered in the energy section, describe how the development has been designed to maximise opportunities for solar gain and passive cooling in accordance with criterion c) of Policy SD7.
- The proposed approach to the incorporation of electric vehicle charging points in accordance with criterion d) of Policy SD7.
- Compliance with the highest national standards of water efficiency, which for residential developments of one or more gross units means achieving a water efficiency standard of a maximum of 110 litres per occupant per day, in accordance with criterion e) of Policy SD7. For residential development, including replacements, conversions and sub-divisions, a completed 'water efficiency calculator for new dwellings' worksheet that accords with Part G of the Building Regulations' Approved Documents should be provided prior to occupation.
- Measures taken to enable long-term sustainable lifestyles for building occupants in accordance with criterion f) of Policy SD7, with reference to Part M of the Building Regulations.
- The sustainable construction and demolition techniques proposed to achieve efficient use of mineral resources and re-use of construction and demolition waste in accordance with criterion g) of Policy SD7.

Further information and guidance on these sustainability matters are provided in the Council's Green and Blue Infrastructure SPD, Parking Guidance SPD and Design SPD, available at: Supplementary Planning documents and other guidance – Runnymede Borough Council.

Surrey County Council (SCC) has also provided useful guidance on 'Sustainable construction and waste management in new development' (2023) which will help applicants demonstrate that criterion g) of Policy SD7 has been addressed. SCC's Healthy Streets Design Code also sets out requirements for the design and location of electric vehicle charging infrastructure and cycle storage.

Glossary

BER	Building Emission Rate - the actual building CO_2 emission rate. It is expressed in terms of the mass of CO_2 emitted per year per square metre of the total useful floor area of the building (kg/m^2/year). In order to comply with Part L of the Building Regulations, the BER must be less than the TER (see below).
BREEAM	The Building Research Establishment Environmental Assessment Method for assessing, rating and certifying the sustainability of buildings the higheststandards of which are 'Outstanding' (≥85% score) and 'Excellent' (≥70% score)
CCHP	Combined Cooling Heating and Power: a power plant that generates electricity and useful heating and cooling simultaneously for distribution through a network providing power and heat to buildings. The lack of energylost means the system is highly efficient. CCHP plants and distribution networks can work at a number of scales and can be powered by fossil fuels, like oil and gas, or renewable fuels, like wood pellets. CCHP is often referred to as trigeneration and CCHP networks that serve multiple buildings may be referred to as districtheating and cooling networks.
CHP	Combined Heating and Power: a power plant that generates electricity anduseful heat simultaneously for distribution through a network providing power and heat to buildings. The lack of energy lost as heat results in high efficiency. CHP plants and distribution networks can work at a number of scales and can be powered by carbon-based fuels, like oil and gas, or renewable fuels, like wood pellets. CHP is often referred to as cogenerationand CHP networks that serve multiple buildings may be referred to as district heating networks.
Climate Change Adaptation	Adaptations to buildings, places or environments that make them more resilient to, and potentially benefit from, expected changes in climate andweather patterns.
Climate Change Mitigation	Action to reduce the impact of human activity on the climate system, mainlythrough reducing greenhouse gas emissions.
Communal heating	A general term for a shared heating system in a single building where heat is supplied to multiple dwellings and/or non-residential uses using pipes containing hot water.
Communal heat network	A set of flow and return pipes circulating hot water to the apartment blocks (and apartments contained therein) and non-residential buildings on a development.
DER	Dwelling Emission Rate - the actual dwelling CO_2 emission rate. It is expressed in terms of the mass of CO_2 emitted per year per square metre of the total useful floor area of the dwelling (kg/m^2/year). In order to comply with Part L of the Building Regulations, the DER must be less than the TER (see below).
Direct carbon emissions	The direct or operational carbon emissions are emissions that result from the use of a building (e.g. space and water heating, lighting, mechanical ventilation)
District heating	See heat network.

Embodied energy	The energy consumed by all of the processes associated with the production of a material or building including mining and processing ofnatural resources, manufacturing, transport and product delivery.
EPC	Energy Performance Certificate is a report that assesses the energyefficiency of a property with recommendations of the requirements
EV	Electric vehicle - a vehicle powered by electricity.
Fabric First	Maximising the performance of the components and materials that make upthe building fabric itself, before considering the use of mechanical or electrical building services systems.
Heat Distribution Network	See heat network.
Heat Network	A system of insulated pipes which transports heat from a source (or multiplesources) to more than one end user.
Heat Pump	A heating system that absorbs heat from the air, ground or water and uses it to heat a building. Some heat pumps can also cool buildings by transporting heat outside for both residential and commercial development.There are wide variety of technologies and further information can be found here: www.renewableenergyhub.co.uk/main/heat-pumps-information/
Householder development proposals	Householder developments are defined as those within the curtilage of a dwellinghouse which require an application for planning permission and are not a change of use and include extensions, conservatories, loft conversions, dormer windows, alterations, garages, car ports or outbuildings, swimming pools, walls, fences, domestic vehicular accesses including footway crossovers, porches and satellite dishes. Applications relating to any work to one or more flats, applications to change the number of dwellings (flat conversions, building a separate house in the garden), changes of use to part or all of the property to non-residential (including business) uses, or anything outside the garden of the property (including stables if in a separate paddock) are excluded.
Major development proposals	For the type of development covered by this SPD, major development involves any one or more of the following: • The provision of housing where: i. The number of houses to be provided is 10 or more; or ii. The development is to be carried out on a site having an area of 0.5ha or more; • The provision of a building or buildings where the floorspace to be created by the development is 1000sqm or more; or • Developed carried out on a site having an area of 1ha or more.
Minor development proposals	A minor development is anything that does not meet the criteria for major development, For example: • the number of dwellings is between one and nine; • the floorspace is less than 1,000sqm or the site area less than one hectare; • gypsy and traveller sites - up to nine pitches.

Non-major development proposals	Where this SPD refers to non-major development, it means any development of a smaller scale than major development, including minor and householder development.
Operational carbon emissions	See direct carbon emissions.
Part L of the Building Regulations	Approved documents L1 and L2 of the Building Regulations relate to the conservation of fuel and power in dwellings and buildings other than dwellings respectively.
Passivhaus	A 'passive house' in English – refers to buildings created to rigorous energy efficient design standards so that they maintain an almost constant temperature.
Regulated energy	Energy consumed by a building and its controlled fixed services and systems, including space heating and cooling, hot water, ventilation, fans, pumps and lighting.
Renewable and low carbon energy	Includes energy for heating and cooling as well as generating electricity. Renewable energy covers those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the movement of the oceans, from the sun and also from biomass and deep geothermal heat. Low carbon technologies are those that can help reduce emissions (using non-combustible sources (except for biomass) compared to conventional use of fossil fuels).
SuDS	Sustainable Drainage Systems (previously known as Sustainable Urban Drainage Systems) - drainage systems designed to reduce surface water flooding impacts from development through the use of natural systems e.g. by creating ponds and swales and using permeable materials for hard surfaces.
TER	Target Emission Rate - the target CO_2 emission rate for a new building/dwelling setby the Building Regulations. The TER differs depending on the detail of thebuilding.
Unregulated energy	Energy consumption within a building that is not 'controlled' – from aspects of the building on which Building Regulations do not impose a requirement e.g. energy associated with lighting, appliances and cooking.

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