

Planning Policy Team

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Sustainable Design & Construction

Technical Advice Note (TAN) 14

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Version 2

This TAN has been amended to reflect the updated Building Regulations that came into effect June 2022, see page 15 for more details about how policy RE1 should be interpreted in light of these changes.

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1. Introduction

The City Council aims to tackle the causes of climate change by ensuring new development uses less energy and development proposals are assessed and optimised to be as energy efficient as possible, using sustainable design and construction, renewable energy technologies and low carbon technology. The City Council is committed to a 100% reduction in total carbon dioxide (CO₂) emissions produced in the city by the national policy target of 2050 in order to limit its impacts on climate change. As well as declaring a climate emergency in 2019, the City Council (February 2021) has signed a pledge to achieving net zero carbon emissions as a city by 2040.¹

As well as renewable energy and low carbon technologies, there are many aspects of design and construction that must be considered in order to ensure sustainability. This includes the accessibility of the location, the density and mix of uses proposed, detailed design, orientation, and the mechanical services and materials chosen. As well as the use of low carbon technologies, Policy RE1 requires that all schemes must address sustainable development principles from the start of the design process.

Purpose of this TAN

This technical advice note (TAN) aims to provide advice and guidance on Local Plan Policy RE1 – Sustainable Design and Construction. It is intended to be used by developers, City Council officers (including Development Management case officers), elected Members and landowners.

Sustainable design and construction is an important part of planning for new development as we need to consider the best use of our natural resources and to mitigate any potential future environmental impacts. This TAN sets out how the Sustainable Design and Construction principles featured in Policy RE1 are to be applied and provides guidance on the other more technical elements of the policy. It is important that development proposals demonstrate how they are not only mitigating the effects of climate change but also how they are adapting to it, especially as the effects of more extreme weather events are likely to be felt in Oxford throughout the plan period.

The second part of Policy RE1 relates to carbon reduction and is of a technical nature. It is therefore important that it is understood by all parties in order to avoid delays in the planning process. The TAN sets out the information that will be required in order to check that the policy requirements are met, and explains how it will be measured. This TAN helps to ensure that the Oxford Local Plan is successfully implemented, and is important in supporting the City Council to respond to the climate emergency².

¹ [Leaders across Oxford support 2040 net zero carbon emissions pledge](#) (published on city council webpages 4 February 2021)

² [Report of the Climate Emergency Review Group 2020](#) - commissioned by City Council Scrutiny Committee

This TAN is not intended as a toolkit. It does not set out the potential carbon efficiency measures that may be considered in order to achieve the carbon reduction targets. This will be a matter to be considered having regard to the specifics of each development. It should be considered from the start of the design process. Technical advice is likely to be required, in order to provide the technical information needed to assess an application against the policy (as set out in this TAN). From the beginning of the design process the carbon implications of materials chosen and the energy efficiency of the design of the building should be intended to result in carbon efficient construction. To meet the targets it is likely that in addition some on-site renewable/carbon efficient energy generation will also be required. Advice is not given here about the most appropriate measures to consider because this will vary from scheme to scheme and also over time.

2. Policy Context

National Policy and Guidance

On 1 May 2019, the government declared a “climate emergency” and in June 2019 the Climate Change 2008 (2050 Target Amendment) Order 2019 was made. This Order commits the country to a net zero emissions target. This Order has had cross party support and provides a strong indication of the Government’s direction of travel in this important and emerging policy area.

The NPPF paragraphs 148 -150 states:

148. The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions; minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

149. Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.

150. New development should be planned for in ways that: a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and b) can help to reduce greenhouse gas emissions, such as through its location, orientation

and design. Any local requirements for the sustainability of buildings should reflect the Government’s policy for national technical standards.

Policy RE1

The Local Plan sets out a clear vision for Oxford in 2036. This vision importantly recognises that we want Oxford to be ‘an environmentally sustainable city’. Policy RE1 is one way in which the Local Plan sets out to achieve this element of its vision. Policy RE1 and the supporting text is set out in full at Appendix 1.

What is Sustainable Design and Construction?

The first part of Policy RE1 sets out sustainable design and construction principles that should be incorporated in all applications where relevant. Information about how proposals have incorporated these principles will be required to support a planning application. This would most helpfully be set out in a Sustainability Statement (which should be proportionate to the size of the development). Information about the sustainability principles may alternatively be provided as an aspect of a Design and Access Statement, or the Energy Statement. This TAN sets out the type of information we expect to see included in an Energy Statement and also in a Sustainability Statement.

3. Guidance on Policy Requirements

Sustainable Design and Construction Principles – Bullet points a) to g) of Policy RE1

Policy RE1 refers to seven sustainable design and construction principles. The supporting text recognises the importance of considering sustainable development principles from the start of the design process. Where sustainable design and construction principles have been considered and have informed the design process, it will be important to document these principles and the supporting text suggests that this could be within a Design and Access Statement, or in a Sustainability Statement, which covers wider sustainability issues. It would also be acceptable for the Energy Statement to explain how these principles have been incorporated. Table 1 below sets out how these principles relate to other parts of the plan and provides some additional supporting information about each of these aspects of design.

Table 1: Sustainable Design and Construction Principles

| Sustainable Design and Construction Principle | Explanation and relationship to other parts of the plan |
|--|---|
| a) Maximising energy efficiency and the use of low carbon energy | Ensuring that all development within Oxford is as energy efficient as possible is a key commitment of the Council in addressing the Council’s zero carbon ambitions and managing the impacts of climate change. This principle seeks to encourage applicants to maximise energy efficiency and low carbon energy in their proposals. Policy RE1 has specific requirements which need to be met and this principle does not over-rule those specific standards. However energy efficiency can be maximised in other ways, for instance through design-principles including orientation and the impact on solar gain, and wind shelter. There are links to high quality design Policy DH1. |
| b) Conserving water and maximising water efficiency | Policy RE1 includes bespoke standards regarding water efficiency in new residential and non-residential developments. This principle seeks to encourage applicants of all development sizes (not just the qualifying developments set out in Policy RE1) to conserve water as well as maximising water efficiency. One well-known water conservation principle is rainwater harvesting (the most common example is using rain water collected in a water-butt to water domestic gardens) but essentially rainwater harvesting collects rainwater and stores it for a non-potable use. Grey water recycling is another water conservation principle whereby wastewater from showers, baths, washing machines etc., is collected undergoes a form of treatment and is then used for a purpose that does not require drinking, e.g., toilet flushing. This can greatly reduce demands on mains water. There is a linkage between Policy RE4: Sustainable and foul drainage and surface water flow. |
| c) Using recycled materials and sourcing them responsibly | Using recycled materials is one way to reduce waste and the environmental impact of construction (by reducing demand for construction materials and reducing the amount of waste sent to landfill). Such materials can be sourced from demolition (reclaimed steel and timber); from construction waste (broken bricks and tiles) and waste from the manufacture of materials and components in other industries. The balance of energy saved from recycling needs to be considered where recycled elements are transported from other sites or require significant levels of reprocessing. However, on-site recycling, demolition and construction waste is nearly always preferable to disposal. This part of Policy RE1 requires applicants to set out how they will recycle materials in their scheme and ensure that this is done in a manner which does not increase carbon emissions. |
| d) Minimising waste and maximising recycling during | It is important for applicants to think about how any domestic and/or commercial waste generated by the development will be dealt with. This part of Policy RE1 requires applicants to provide some information regarding, for instance, how storage facilities are to be provided so that they are accessible, and can be safely and conveniently accessed by building occupants. Similarly it provides an opportunity for applicants to provide |

| | |
|---|---|
| construction and operation | some information regarding how internal layouts include space to store waste conveniently before it is taken outside for recycling or composting. This section has some clear linkages with the previous sustainable design and construction principle and there may well be overlap between the two when considering recycling during construction and operation. |
| e) Minimise flood risk including flood resilient construction | It is likely that any information pertaining to flood risk will be found in a site specific flood risk assessment where this is provided as part of a planning application. However this section of Policy RE1 requires applicants to set out any specific innovations that may be proposed, in particular with regard to making development more flood resilient. There are linkages with Policies RE3 Flood Risk Management and Policy RE4 Sustainable and Foul Drainage, Surface and Groundwater Flow. Simple compliance with Policies RE3 and RE4 may not always provide the most sustainable solution to a minimising flood risk and delivering flood resilient construction as part of a development proposal. The Sustainable Drainage (SuDS) TAN will provide details of best practice in this regard. |
| f) Being flexible and adaptable to future occupier needs | This section is an opportunity for applicants to set out how their proposals may be easily adapted in the future. The Local Plan already includes a policy on accessible and adaptable dwellings (Policy H10). However, this is narrower in its focus, being concerned with ensuring dwellings can be useable for those with mobility problems. There may be other adaptations from an energy perspective which could otherwise be overlooked. One example of this could be the inclusion of a valve on some pipework in order that a development could easily be added to future heat network at a later date. Ensuring a building can be used flexibly to meet changing needs over time is also important, for example through the development of flexible workspaces or the provision of an additional room in new residential accommodation which could be used as an office to facilitate home-working. This section is also about future-proofing development to deal with future climate conditions. This could be through the inclusion of solar shading and additional insulation, or with the creation of a 'usable roof' (where raised beds could be planted for food production and solar panels could be erected). Similarly, as climate change brings hotter dryer summers each year, this section could set out how the development seeks to address this, e.g., the location of tree planting (and tree species) that was selected in order to optimise summer shading and to allow the sun to penetrate at lower angles in winter. |
| g) Incorporating measures to enhance biodiversity | The Local Plan already includes a policy on biodiversity (Policy G2: Protection of biodiversity and geo-diversity) which includes a requirement for major developments on greenfield sites or brownfield sites that have become vegetated to deliver a percentage net gain in biodiversity across the site. However there may be smaller sites coming forward where an applicant wishes to enhance biodiversity for another reason. This part of Policy RE1 requires applicants to set out how they have incorporated measures to enhance biodiversity into a scheme. This may be simply by way of reference to other submitted material including material which relates to biodiversity net gain. As set out in the previous paragraph, the location of tree planting could be optimised to ensure solar shading in summer and to allow sunlight penetration at lower angles in winter. Simple |

| | |
|--|--|
| | <p>compliance with Policy G2 may not always provide the most sustainable way to incorporate biodiversity measures into a scheme. For instance the location of any green spaces or biodiversity interest on site should be positioned to maximise offsetting the impacts of climate change. Incorporating such elements into a scheme from the outset will ensure that their benefits are realised fully.</p> |
|--|--|

Carbon reduction

Energy Statement

The submission of an Energy Statement is a requirement of Policy RE1, which sets out that the Energy Statement “...will include details of how the policy will be complied with...” An Energy Statement needs to include more detailed technical information to comply with the bespoke carbon reduction and water efficiency requirements of the Policy. As set out above, the Sustainability Statement or Design and Access Statement is used to support all applications, whereas an Energy Statement must be provided for applications that meet the thresholds for the carbon efficiency elements set out in Policy RE1.

The Energy Statement also set outs how the policy will be monitored. Policy RE1 requires that an Energy Statement “will include details of how the policy will be.... monitored.” Policy RE1 does not prescribe a one-size-fits-all approach to monitoring leaving applicants the flexibility to decide to how this could take place. The City Council encourages applicants to undertake monitoring in line with the advice given in this TAN.

Units of measurement

The majority of the development sector measures how energy efficient a development proposal is likely to be in terms of its “regulated energy”. Regulated energy is the energy that a building uses that is measured and *regulated* through the Building Regulations. Policy RE1 is measured using regulated energy.

Carbon reduction in new-build residential developments (other than householder applications)

Where it can be demonstrated that a development proposal will result in the creation of new-build residential dwellinghouses, HMOs or student accommodation that meet the thresholds of the policy, this part of Policy RE1 should be applied, and an energy statement provided that demonstrates that the requirements are being met.

Calculating Carbon Reduction

In order to calculate the percentage reduction of carbon emissions required in Policy RE1, the Energy Statement submitted must include the calculations used to demonstrate the energy performance of the building (e.g. the Standard Assessment Procedure (SAP) rating).

Within these calculations the Target Emission Rate (TER) and Dwelling Emission Rate (DER) for the proposed development will be set out. TER is the amount of CO₂ (measured in kg/m²)

specified by the Building Regulations (including any future equivalent legislation³). DER is the amount of CO₂ that the proposed development will produce.

The following formula will be used to calculate the percentage reduction required by Policy RE1⁴:

$$(1-(DER/TER)) \times 100 =\%$$

In order to show how this formula can be used to calculate percentage carbon reduction, the following section shows how to obtain the data necessary to apply the formula using excerpts from example energy statements:

At the beginning of an Energy Statement, a summary of the information relating to the TER and DER figures should be presented by an applicant. The percentage carbon emission reduction should also be stated. This information can be seen highlighted in red in Figure 1:

Draft SAP Calculations have been produced from the planning drawings and proposed specification and by including an Air-Source Heat Pump we can reduce the carbon emissions significantly beyond Part L1a 2013 Building Regulations and achieve the required minimum 40% reduction in carbon emissions required by Oxford City Council's Policy RE1.

The TER and DER figures in the SAP Calculations are measured in kg of CO₂ emissions per year divided by the dwelling floor area.

With the inclusion of an Air-Source Heat Pump the baseline TER (Target Emission Rate) for the dwelling is 21.47 as demonstrated through the attached Draft SAP calculations.

The attached Draft SAP calculations demonstrated the DER (Dwelling Emission Rate) of 11.18 represents a **47.9%** reduction in carbon emissions and therefore meets compliance with Oxford City Council's Policy RE1.

Figure 1: Extract from an Example Energy Statement (using SAP calculation software)

In order to check the carbon reduction figure, officers will locate the TER and DER figures within the calculations (e.g. SAP). These figures are likely to be located in the Appendix of an Energy Statement. Figure 2 highlights in red the TER figures. These figures are measured in kg/m².

³ Section 4 below sets out the approach to dealing with future equivalent legislation.

⁴ Policy RE1 introduces more stringent standards in 2026 (50% reduction) and then 2030 (100% carbon reduction for new-build residential developments).

**This report covers items included within the SAP calculations.
It is not a complete report of regulations compliance.**

| 1a TER and DER | | | |
|--|------------------|-------------------------|----|
| Fuel for main heating system: Electricity | | | |
| Fuel factor: 1.55 (electricity) | | | |
| Target Carbon Dioxide Emission Rate (TER) | | 21.47 kg/m ² | |
| Dwelling Carbon Dioxide Emission Rate (DER) | | 11.18 kg/m ² | OK |
| 1b TFEE and DFEE | | | |
| Target Fabric Energy Efficiency (TFEE) | | 53.7 kWh/m ² | |
| Dwelling Fabric Energy Efficiency (DFEE) | | 45.0 kWh/m ² | OK |
| 2 Fabric U-values | | | |
| Element | Average | Highest | |
| External wall | 0.14 (max. 0.30) | 0.14 (max. 0.70) | OK |
| Floor | 0.15 (max. 0.25) | 0.15 (max. 0.70) | OK |
| Roof | 0.15 (max. 0.20) | 0.15 (max. 0.35) | OK |
| Openings | 1.40 (max. 2.00) | 1.40 (max. 3.30) | OK |
| 2a Thermal bridging | | | |
| Thermal bridging calculated from linear thermal transmittances for each junction | | | |
| 3 Air permeability | | | |
| Air permeability at 50 pascals | | 7.00 (design value) | |
| Maximum | | 10.0 | OK |
| 4 Heating efficiency | | | |

Figure 2: Example of SAP calculation, including TER and DER.

Using the formula set out above, the percentage carbon reduction can be calculated by officers using the TER and DER figures outline above:

$$(1-(\text{DER}/\text{TER})) \times 100 = \%$$

Calculation using the TER figures in Figure 2:

$$(1-(11.18/21.47)) \times 100 = 47.9\%$$

This percentage matches the figure presented in the Energy Statement.

Water Efficiency

Residential developments:

Policy RE1 states: “Proposals for new residential developments are to meet the higher water efficiency standards within the 2013 Building Regulations (or equivalent future legislation) Part G2 water consumption target of 110 litres per person per day”.

The mandatory standard that all new homes must meet is 125 litres per person per day. Where there is a clear local need, planning authorities can set out Local Plan policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110 litres per person per day. Oxford is located within an area of serious water stress, and thus the tighter requirement has been applied for residential developments.

Non-residential developments:

Policy RE1 states: *“Proposals for non-residential development are to meet the minimum standard of four credits under the BREEAM assessment”*.

The BREEAM assessment uses a series of categories to measure a development proposal’s sustainability. Each of the categories, which range from energy to materials, have their own targets/benchmarks which developments have to meet in order to be BREEAM accredited, and are scored using a credit system.

Water is one of the BREEAM assessment categories. Policy RE1 requires non-residential developments to attain at least four credits using the BREEAM assessment. Four credits under the BREEAM assessment is the equivalent to a 50% improvement in water efficiency against a BREEAM approved baseline. Water consumption for the assessed building is compared against a baseline performance.

Monitoring

Policy RE1 includes a requirement that the Energy Statement *“will include details as to how the policy will be complied with and monitored”*. The supporting text (paragraph 4.4) sets out that the *“local plan supports the monitoring of development proposals in the form of post construction testing”*. The reason for this is to *“ensure that performance standards for low carbon buildings are linked to as-built performance.”*

Although Policy RE1 does not place any formal requirements on precisely how monitoring of development proposals should take place, it nonetheless introduces a requirement that it is carried out. This TAN therefore provides advice as to the type of monitoring the City Council would like to see carried out by applicants.

Monitoring (particularly in the form of post-construction testing), has benefits that can be realised by owners, occupiers and other parties (e.g. housebuilders) involved in the development process. For instance owners and occupiers are likely to benefit from monitoring by being able to regularly check the building’s energy performance between the design stage and the use of the building in practice. This could result in financial savings being made as less energy is used it is likely to result in reduced energy bills. Housebuilders are likely to benefit from monitoring (in the form of post-construction testing) too as they are likely to be able to demonstrate energy efficiencies in the homes they area building. This is information that they can share with consumers to demonstrate effective use of the technologies employed.

One example of post-construction testing and monitoring for residential developments would be the installation of appropriate energy metering (e.g. Smart Meters) in order to demonstrate compliance with Policy RE1.

The Building Regulations (2010) (L2A Conservation of Fuel and Power) require that in new buildings (other than dwellings) over 1,000m² automatic meter reading and data collection

facilities are provided. The requirement for energy meters also features under the BREEAM accreditation scheme for levels 'Very Good', 'Excellent' and 'Outstanding'.

For non-residential developments, there also is a mandatory requirement under the Building Regulations for new development to display a Display Energy Certificate (DEC) where it has a usable floor area of over 1,000m².

The City Council encourages applicants to share Display Energy Certificates for non-residential development over 1,000m² for three years following occupation with an expectation that a DEC Rating of 'A' will be achieved at the end of the three-year period.

This is also the preferred monitoring approach for student accommodation, and HMO development over 1,000m².

Environmental Assessment Methods for non-residential developments

Policy RE1 includes the phrase "or recognised equivalent assessment methodology". This phrase was added in recognition of the fact that BREEAM is not the only assessment methodology and that other methods of assessment (e.g. Passivhaus) are available. If an applicant wishes to use a method other than BREEAM for a major non-residential development, then it is advised to check with the Council in order to ensure that is acceptable.

BREEAM

BREEAM or Building Research Establishment Environmental Assessment Method, is a sustainability assessment method which recognizes and reflects the value in higher performing assets across the built environment lifecycle, from new construction to in-use and refurbishment. The scheme provides certification of the assessment of the sustainability performance of buildings.

When looking at carbon reduction in new-build non-residential developments of 1000m² or more, Policy RE1 states that proposals must meet the BREEAM excellent standard (or recognised equivalent assessment methodology). A BREEAM "excellent" rating level broadly represents performance equivalent to the top 10% of UK new non-domestic buildings (best practice).

In order to achieve the BREEAM excellent standard, the BREEAM assessment uses a series of categories to measure a development proposals' sustainability:

- Energy
- Health and Wellbeing
- Innovation
- Land Use

- Materials
- Management
- Pollution
- Transport
- Waste
- Water

Each of the categories have their own targets/benchmarks which developments have to meet in order to be BREEAM accredited, and are scored using a credit and weighting system. When each of the categories have been scored and therefore the development has been fully assessed, the final performance rating, i.e. whether it achieves 'excellent' standard, is determined by the sum of the weighted category scores.

Therefore, for a new-build non-residential development of 1000m² or more to comply with Policy RE1, the development not only has to achieve the minimum standard of four credits under the BREEAM assessment under the water category, it has to achieve an 'excellent' rating once all of the BREEAM categories have been assessed, scored, and weighted.

Passivhaus

The definition of the Passivhaus Standard is:

*"A Passivhaus is a building in which thermal comfort can be achieved solely by post-heating or post-cooling the fresh air flow required for a good indoor air quality, without the need for additional recirculation of air."*⁵

The key focus of the Passivhaus Standard is to reduce the need for heating and cooling, and therefore creating an excellent indoor comfort levels. For a building to achieve the Passivhaus Standard, the following are typically used:

- High levels of insulation
- High performance windows with insulated frames
- 'Thermal bridge free' construction
- Airtight building fabric
- Mechanical ventilation system with efficient heat recovery

By reducing the space heating requirements of a building, the Passivhaus Standard therefore can help contribute to a reduction in carbon.

⁵ ['What is Passivhaus?' - Passivhaus Institute](#) (link goes to online video)

The Passivhaus Standard can be used for both residential and non-residential development proposals. A registered Passivhaus Certifier can assess whether a development proposal would gain accreditation under the Passivhaus Standard.

Home Quality Mark

The Home Quality Mark is an assessed certification scheme for new residential developments. This scheme awards certificates with a star rating for the standard of a dwelling's design, construction and sustainability. Residential developments with a Home Quality Mark certificate meet standards which are considerably greater than minimum standards such as Building Regulations.

The Home Quality Mark is an optional standard which applicants may choose to employ. Oxford City Council encourages new-build residential developments to use the Home Quality Mark to demonstrate the standard of a new dwelling.

4. Definitions/Further Clarity

Students (C2 vs Sui Generis)

The glossary of the Local Plan 2036 defines student accommodation as, "accommodation whose main purpose is to house students of sixteen years and above, registered on full-time courses of an academic year or more in Oxford." Policy RE1 applies to all types of student accommodation. This includes both C2 and sui generis student accommodation.

Heat Networks

A heat network (district heating) is a distribution system of insulated pipes that takes heat from a central source and delivers it to a number of domestic or non-domestic buildings. The heat source might be a facility that provides a dedicated supply to the heat network, such as a combined heat and power plant; or heat recovered from industry and urban infrastructure, canals and rivers, or energy from waste plants.

Heat networks are one of the most cost-effective ways of reducing carbon emissions from heating, and their efficiency and carbon-saving potential increases as they grow and connect to each other. They provide a unique opportunity to exploit larger scale – and often lower cost – renewable and recovered heat sources that otherwise cannot be used. It is estimated by the CCC that around 18% of UK heat will need to come from heat networks by 2050 if the UK is to meet its carbon targets cost effectively.

Policy RE1 states 'Oxford City Council will encourage the development of city wide heat networks. If a heat network exists in close proximity to a scheme it is expected to connect to it and this will count towards the development's carbon reduction requirements. Evidence will be required to demonstrate why connection to the network is not possible.'

The City Council website includes information regarding heat networks. Currently two feasibility studies have been undertaken – one for the centre of Oxford and one for Headington. Further information is available on the Council [webpages](#).

Future Equivalent Legislation – Building Regulations (inc. June 2022 update)

It was anticipated that the Building Regulations, in particular Part L were likely to change throughout the lifetime of the Plan. As Policy RE1 makes reference to “*a 2013 Building Regulations (or future equivalent legislation) compliant base case*”, this means that if changes to the Building Regulations occur, the policy requirement (to achieve at least a 40% reduction in carbon emissions) in the first instance until 2026, would still apply using the future equivalent legislation as an updated base line.

The government has published details of its next update to Building Regulations, which comes into effect from June 15th 2022. The interim update includes revisions to parts L (conservation of fuel and power) and F (ventilation) and creates new provisions in parts O (overheating) and S (infrastructure for electric vehicles). One area of change in particular relates to part L and is an update to fabric efficiency thresholds for some elements of the notional building as well as updates to the SAP methodology. Full details of the updated requirements should be sourced from the relevant official documents.

As set out above, from June 15th 2022, policy RE1’s 40% reduction target will need to be calculated in relation to the new Building Regulations 2022 baseline. This will apply to applications that are received by the Council from that date.

Road to Net Zero by 2040

It is worth setting out that this TAN provides technical guidance for the Oxford Local Plan 2036, and that Policy RE1 requires (post-2030) that all new residential developments are zero carbon. It is acknowledged that zero carbon in this instance refers to regulated emissions and that there is now an ambition of the City Council and others to achieve net zero carbon emissions as a city by 2040. The current policy approach is certainly aligned with the 2040 ambition however more work will need to be undertaken as part of the next Local Plan as to how the 2040 ambition will be delivered both in the residential and non-residential development sectors.

5. Additional supporting information

External resources:

- [Building Research Establishment Environmental Assessment Method \(BREEAM\)](#)

BREEAM is a leading sustainability assessment method for infrastructure, building and masterplanning projects, which is based on third party certification of the assessment of an asset's environmental, social and economic sustainability performance, using standards developed by Building Research Establishment (BRE).

- [Home Quality Mark](#)

The Home Quality Mark provides impartial information from independent experts on a new home's quality and sustainability. It clearly indicates to householders high standards for running costs, health and wellbeing benefits, and environmental footprint associated with living in the home.

- [Heat Networks](#)

Heat networks form an important part of the government's plan to reduce carbon and cut heating bills for customers.

6. Contacts

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7. Appendices

Appendix 1: Policy RE1 and its Supporting Text

Sustainable design and construction

Carbon reduction

The City Council aims to tackle the causes of climate change by ensuring developments use less energy and assess the opportunities for using renewable energy technologies. The City Council is committed to a 100% reduction in total carbon dioxide (CO₂) emissions produced in the City by 2050 from 1990 levels to limit climate change. Thus, it is crucial that planning policy limits carbon dioxide emissions from new development wherever possible and supports sensitive energy efficiency improvements to existing buildings. In addition, policy seeks to ensure that the gap between the designed and as built energy performance of new buildings is as little as possible.

When a building is constructed, the accessibility of its location, its density and mix of uses, its detailed design, its orientation, and the mechanical services and materials chosen can all have a major impact on its energy efficiency. The City Council will require all schemes to consider sustainable development principles from the start of the design process and include these in their Design and Access Statement and/or Sustainability Statement or potentially the energy statement.

BREEAM

BREEAM (Building Research Establishment Environmental Assessment Method) is a tool for assessing the environmental sustainability of a development. The BREEAM standards will be applied to non-residential developments including conversions, extensions and changes of use). The Home Quality Mark (2015) is another way of demonstrating the standard of a new residential dwelling, which includes measures for low CO₂, sustainable materials, good air quality and natural daylight. The City Council will encourage schemes to use the Home Quality Mark. The use of Passivhaus standard is also encouraged in demonstrating energy efficient design.

Monitoring

The local plan supports the monitoring of development proposals in the form of post construction testing in order to improve our understanding of these issues and also to ensure that performance standards for low carbon buildings are linked to as-built performance.

Sustainable retrofitting of existing buildings

In Oxford, existing domestic buildings contributed 31% of the city's carbon emissions in 2015⁶. Therefore, retrofitting the existing building stock presents an opportunity to help meet the carbon reduction targets for the city. The Local Plan supports sustainable retrofitting

⁶ Source: [UK local authority and regional carbon dioxide emissions national statistics: 2005-2015](#)

measures for existing buildings. Such measures can range from low cost measures such as loft and cavity wall insulation to complete refurbishment of buildings and their systems. The low energy refurbishment of homes could help reduce fuel bills and create a better environment for occupiers, which will be particularly important for the most vulnerable groups, including those living in fuel poverty. The City Council has produced Technical Advice Notes on External Wall Insulation and the Heritage Energy Efficiency Toolkit to provide information to developers as to how to maximise the opportunities for retrofitting buildings.

Oxford has a wealth of Listed Buildings and traditional buildings in conservation areas. These buildings present a considerable challenge when considering how on-site renewables can be incorporated and carbon emissions reduced. The Council supports all measures to retrofit listed and historical buildings in a sensitive manner and has produced the [Heritage Energy Efficiency Tool \(HEET\)](#). This guidance helps assess energy efficiency improvements for historic buildings.

[Water Efficiency](#)

An optional water efficiency standard was introduced in 2015 following the Housing Standards Review. This higher option standard for new development of 110 litres per person per day as set out in Building Regulations Part G2 can be applied where there is an evidence based need that the area is water stressed. The area of South East England in which Thames Water operates and Oxford is located, has been classified by the Environment Agency as being under serious water stress. Thus to ensure adequate water supply during the plan period new development will be expected to meet higher water efficiency standards as set out in Policy RE1. For non-residential development the Local Plan sets a minimum standard that must be achieved within the BREEAM assessment. Opportunities to harvest grey water should be encouraged and developed, where possible, in new development.

Policy RE1: Sustainable design and construction

Planning permission will only be granted where it can be demonstrated that the following sustainable design and construction principles have been incorporated, where relevant:

- a) Maximising energy efficiency and the use of low carbon energy;
- b) Conserving water and maximising water efficiency;
- c) Using recycled and recyclable materials and sourcing them responsibly;
- d) Minimising waste and maximising recycling during construction and operation;
- e) Minimising flood risk including flood resilient construction;
- f) Being flexible and adaptable to future occupier needs; and
- g) Incorporating measures to enhance biodiversity value.

Energy Statements

An Energy Statement will be submitted to demonstrate compliance with this policy for new-build residential developments (other than householder applications) and new-build non-residential schemes over 1,000m². The Energy Statement will include details as to how the policy will be complied with and monitored.

Carbon reduction in new-build residential developments (other than householder applications):

Planning permission will only be granted for development proposals for new build residential dwellinghouses or 1000m² or more of C2 (including student accommodation), C4 HMO or Sui Generis HMO floorspace which achieve at least a 40% reduction in carbon emissions from a 2013 Building Regulations (or future equivalent legislation) compliant base case. This reduction is to be secured through on-site renewable energy or other low carbon technologies (this would broadly be equivalent to 25% of all energy used) and/ or energy efficiency measures. The requirement will increase from 31 March 2026 to a 50% reduction in carbon emissions. After 31 March 2030 planning permission will only be granted for development proposals for new build residential dwelling houses or 1,000m² or more of C2 (including student accommodation, C4 HMO or Sui Generis HMO floorspace that are Zero Carbon.

Carbon reduction in new-build non-residential developments of 1000m² or more:

Planning permission will only be granted for non-residential development proposals that meet BREEAM excellent standard (or recognised equivalent assessment methodology) in addition to the following reductions in carbon emissions which are also required.

Planning permission will only be granted for development proposals of 1,000m² or more which achieve at least a 40% reduction in the carbon emissions compared with a 2013 Building Regulations (or future equivalent legislation) compliant base case. This reduction is to be secured through on-site renewables and other low carbon technologies and/ or energy efficiency measures. The requirement will increase from 31 March 2026 to at least a 50% reduction in carbon emissions.

Heat networks

The City Council will encourage the development of city wide heat networks. If a heat network exists in close proximity to a scheme it is expected to connect to it and this will count towards the development's carbon reduction requirements. Evidence will be required to demonstrate why connection to the network is not possible.

Water efficiency – residential development:

Proposals for new residential developments are to meet the higher water efficiency standards within the 2013 Building Regulations (or equivalent future legislation) Part G2 water consumption target of 110 litres per person per day.

Water efficiency – non-residential development:

Proposals for non-residential development are to meet the minimum standard of four credits under the BREEAM assessment.