Westmorland & Furness Council

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Sustainable Buildings Strategy

Corporate and School Refurbishment and New Build Construction

Ullswater from Glenridding

Glossary

Acronym	Meaning
AHU	Air Handling Unit
BMS	Building Management System
BNG	Biodiversity Net Gain
BREEAM	Building Research Establishment Environmental Assessment Methodology
CCC	Cumbria County Council
CDM	Construction, Design and Management
CIBSE	Chartered Institution of Building Services Engineers
CLT	Cross-Laminated Timber
CO2 e	Carbon Dioxide Equivalent
DfP	Design for Performance
DHW	Domestic Hot Water
DNO	Distribution Network Operator
EPC	Energy Performance Certificate
EPD Declaration	Environmental Product
EUI	Energy Use Intensity
GCV	Gross Calorific Value
GHG	Greenhouse Gas
GIA	Gross internal area
HVAC	Heating, Ventilation and Air Conditioning
ITT	Invitation To Tender
KPI	Key Performance Indicator
LPG	Liquid Petroleum Gas
LV	Low Voltage (switchgear,panels)
NABERS	National Australian Built Environment Rating System
NCV	Net Calorific Value
NIA	Net Internal Area
OCLCA	One Click Lifecycle Assessment
PC	Practical Completion
PHPP	Passive House Planning Package
POE	Post Occupation Evaluations
PV	Photovoltaic
SSSI	Site of Special Scientific Interest
VOC	Volatile Organic Compounds
ZCCP	Zero Carbon Cumbria Partnership

Definitions

Air Permeability This is a measure of the volume of air that leaves a building through gaps/cracks in the building materials as a result of pressure differentials.

Air Tightness A building property which impacts air infiltration and exfiltration. During the construction phase, a key aim is to reduce and close gaps within construction material fabric.

BREEAM A sustainability assessment method to masterplan projects, infrastructure and buildings.

Carbon Neutral This is the position where the CO_2 released by an organisation is balanced by an equivalent amount being removed or mitigated.

Circular Economy This is a model of production and consumption, involving the sharing/leasing, reusing, repairing and recycling of a product or building for as long as possible. This effectively is a measure of extending a buildings life cycle and reducing waste throughout, especially during deconstruction.

Climate Change Resilience and Adaptation Adaptation is defined as the process of adjusting to the expected or actual future climate and its effects. Resilience on the other hand is defined as the capacity to prepare for, respond to, and recover from the impacts of hazardous climate events.

Design for Performance An assessment which is a process that helps owners and developers improve the energy efficiency of new and refurbished office buildings.

Efficacy A ratio of light intensity or light provided in lumens to the power consumed (watts).

G99 & G100 Application An application to be sent to the Distribution Network Officer (DNO).

Greenhouse Gas These are the seven major Greenhouse Gases. These are, with their respective Greenhouse Warming Potentials:

- Carbon Dioxide (CO2) GWP 1
- Methane (CH4) GWP 23
- Nitrous Oxide (N2O) GWP 296
- Hydrofluorocarbons (HFC) GWP 77 to 14,800
- Perfluorocarbons (PFC) GWP 6,500 to 12,200
- Sulphur Hexafluoride (SF6) GWP 22,200
- Nitrogen Trifluoride (NF3) GWP 8,000

Heat Pumps A technology which extracts heat from a source such as the outside air (air source), the ground (ground source) or water (water source). The extracted heat is then supplied to the building of interest, utilising electricity to drive refrigerant compression.

NABERS National Australian Built Environment Rating System – provides simple, reliable and comparable sustainability measurement.

Net Zero When an organisation has achieved a position where the effects of its activities are such that they have no net increase in the carbon emissions released into the atmosphere

Passive Design Measures Measures that maximise the use of natural heating, cooling and ventilation such as air sealing, insulation or daylighting measures.

U-Value This indicates the rate of heat transfer through a material or structure, with lower U values corresponding to improved insulating properties.

WELL A building standard concerned with health and wellness in the built environment.

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0.0.1 Background

Background

Westmorland and Furness Council is a new unitary authority established on 1 April 2023 and covers the areas previously administered by the former district councils of Barrow, Eden and South Lakeland in Cumbria. It also encompasses the former functions of what was previously Cumbria County Council.

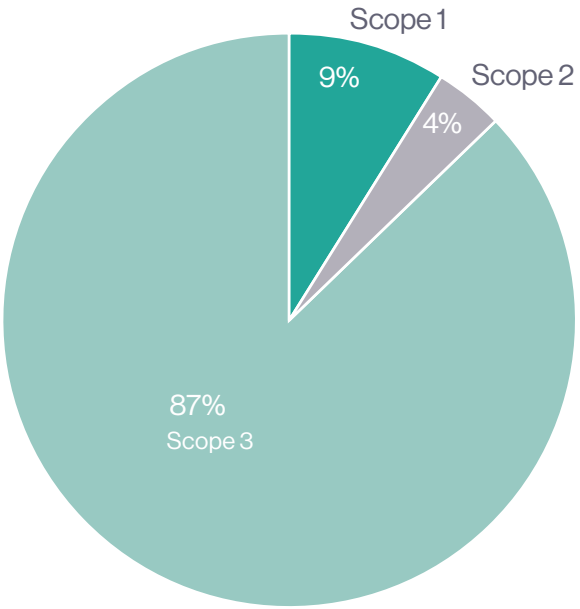
The new unitary authority, like its predecessors, is committed to becoming carbon net zero and this commitment is reiterated in the Council Plan, Climate Action Plan and its Carbon Management Strategy.

Building on the work of its predecessors, the Council commissioned a comprehensive Carbon Emission Baseline Study covering all of the council's assets and services, excluding pensions and investments. The study looked to measure the total greenhouse gas (GHG) emissions generated by the operations of the council and the services it delivers and provide measures to reduce these emissions.

This is aligned to the national ambition of meeting the Government's Net Zero target for the UK by 2050 and the regional ambition of making Cumbria the first net zero carbon county in the UK by 2037.

Due to the impact of COVID-19 on the council's operations and the services provided, a baseline year of April 2019 to March 2020 was chosen as the reference period as it was considered representative of the normal operations of the council and services it provides.

This baseline year is also considered to be more representative of the council's operations moving forward, as the 2020-2021 and 2021-2022 periods would likely see markedly lower emissions related to travel, due to the effects of COVID-19.



Emissions Breakdown by Scope

GHG Scope	GHG Emissions Tonne CO2e	GHG Emissions Proportion
Scope 1	7,474	9%
Scope 2	3,727	4%
Scope 3	73,350	87%
Total	84,551	n/a

Scope 1 Direct emissions from buildings, plant and vehicles owned or controlled by the council e.g. natural gas used in boilers or fuel used by council owned vehicles

Scope 2 Indirect emissions associated with purchased energy consumed by the council e.g. grid supplied electricity

Scope 3 All other indirect emissions that occur in the council's supply chain e.g. business travel, purchased goods and maintenance contracts

0.0.1 Background

The Carbon Management Strategy 2024-2029 issued by W&F summarises the greenhouse gas (GHG) emissions of the council's operations between April 2019 and March 2020 and breaks down the total into Scope 1, 2 and 3 according to the GHG Protocol Guidelines published by the UK Government.

Of the total emissions calculated, 13% (11,201 tCO2e) of the baseline is attributable to Scope 1 and 2 emissions. These are largely the result of natural gas and electricity consumption in council buildings, (including schools, care homes and offices) as well as council-owned vehicle use.

Decarbonisation curves to achieve net zero buildings and transport by 2037 have been developed along with programmes of activities to achieve the council's objective of net zero Scope 1 and 2 emissions by 2037.

Reference should be made to the relevant PAS standard such as PAS 2038 The Standard for Retrofitting non-domestic buildings for improved energy efficiency.

The Carbon Management Strategy sets out a building emission reduction methodology; with the recommended building energy reduction measures encompassed by four main categories inspired by the four principles of the energy hierarchy:

Behaviour Change - ensuring council employees minimise their energy use

Building Fabric - improvements such as roof and wall insulation, window glazing and draught proofing

Energy Reduction - upgrades, utilising energy efficient technologies to reduce energy consumption

Local Renewables - the installation of solar PV on buildings with adequate roof space and conditions for solar power.

0.0.2 Introduction

The Aim of this Strategy

This Strategy document aims to provide clarity on the sustainability and energy reduction policy requirements for all Corporate Estate projects, helping to minimise carbon emissions and contribute to the Council's Net Zero ambitions. This Strategy is intended to provide a common and holistic vision towards sustainability across existing and proposed building assets within the Council's portfolio.

The Strategy document is intended to cover the three typical project types:

- Minor Refurbishment & Maintenance including Small Extensions
- Major Refurbishment & Repurposing
- New Build and Large Extensions

Minor refurbishment, small extensions & maintenance projects will typically use the parameters within Strategy A. Larger projects including major refurbishment and repurposing, new build, and large extensions will use Strategy B.

A strategy decision flowchart is included for each Strategy to assist, and the user may select the most applicable Strategy for their project.

Utilising a holistic sustainable design approach this Strategy identifies ten core sustainability themes to be applied to all projects. These core themes combine to make up Strategy B, with Strategy A providing guidance on typical components and actions associated with maintenance and minor refurbishment projects.

The two approaches under this Strategy will contribute to the Councils sustainability aspirations of moving towards a net zero county whilst improving and delivering more sustainable places where people live, work and spend time.

The Strategy is intended to be updated to align with developing Policies and to encompass latest best practice industry standards.

It should therefore be read alongside the National Planning Policy Framework and Industry leading standards and where these are not aligned to the current Policy then the more stringent requirement be adopted for project delivery by the project team.

0.0.3 The Core Objectives and Using the Strategy

The Core Themes

This document outlines the key considerations given to sustainability in a broader context than simply energy and carbon emissions. It extends over and above the Councils net zero carbon vision and encompasses sustainability as a whole. By including these considerations, the likelihood of high quality, successful and multi-beneficial developments is increased.

The ten core sustainability objectives within this Strategy provide a comprehensive range of topics to be considered and incorporated within each project/development from conception through to operation. These reflect the themes that are currently used as sustainability indicators, and are then sub-divided into multiple secondary criteria and indicators of success.

A project Tracker is provided for Strategy B which shall be used to set, record and report progress against the sustainability criteria. Use of the Tracker provides a numeric score from which the sustainability success of a project can be measured.

The design team must demonstrate how the proposed scheme encompasses delivery of a high quality and sustainable project. They must ensure that, where achievable, it fully aligns with the standards of this Strategy. Deviation from the sustainability objectives within this Strategy will require clear and robust justification.

What are the benefits

The Strategy has a number of benefits which include:

- Reduce energy consumption and carbon emissions throughout the Councils property portfolio.
- Provide a clear, transparent, and consistent approach to sustainability on Council property projects.
- Inspire high standards across all building typologies and encourage implementation of sustainability as a first design principle.
- Remove ambiguity by providing designers with a framework and consistent brief to deliver the standard of product that the Council is striving to achieve.
- Minimising waste across the lifecycle of council buildings by implementing concepts of a circular economy during the design stage
- Adopt methods of mitigating and adapting to the future effects of climate change

0.0.3 The Core Objectives and Using the Strategy

How will it be used?

This Strategy is intended to inform the design and development process from concept to operation and embed the principles and qualities of good design in all developments within the Council portfolio.

The Strategy has been separated into two distinct development types as summarised below:

- **Strategy A** is intended to provide guidance for existing assets, small extensions, reactive maintenance and refurbishment.
- **Strategy B** is intended to provide guidance for major refurbishment and repurposing, new builds and large extensions that typically trigger a planning application.

All consultants should provide an initial design proposal that meets the targets outlined in this strategy.

A decision matrix is provided within Section 1.0 Strategy Framework which can be used to define the appropriate Strategy (A/B) for each project.

Core Strategy Sustainability Objectives

1. Energy Use and Carbon Emissions
2. Transport
3. Materials, Resource Use and Supply Chain
4. Construction Waste
5. Water
6. Climate Resilience and Adaptation
7. Biodiversity
8. Wellbeing
9. Social Value
10. Certification

0.0.4 Procurement

What is Procurement?

Procurement is the process through which an organisation establishes and manages contracts for goods, works, services and utilities. The following definition was agreed within the council:

"Procurement is the process of acquiring goods, works, services and utilities from third parties. This is a process that spans the whole procurement life cycle from identification of needs, through to the end of a works or services contract or the end of the useful life of an asset."

Aims, Objectives and Priorities

"To work in partnership with internal and external stakeholders ensuring procurement is carried out in an ethically, social and environmentally responsible way, that delivers value for money, and long term benefits for the Council and the residents in Westmorland and Furness"

To ensure that this is achieved, the following core principles were devised

- Services to be procured are designed around our residents and service users.
- Support local economic growth.
- Work with local supply chains, the voluntary and community sector, and small to medium enterprises to upskill their workforce and increase opportunities.
- Work with local networks and institutions and increase opportunities for collaboration in procurement.
- Become forward looking, using data and intelligence effectively to drive improved decision making, to ensure procurement activity is needs led and sustainable.

0.0.4 Procurement

Ensuring Alignment with the Sustainable Building Strategy

In order to support the council vision, procurement must place importance on Environmental, Social and Governance (ESG) factors. This means the council are looking at how to achieve the following to hold their supply chain accountable in terms of social and environmental impacts:

- Minimising negative environmental impacts, such as reducing greenhouse gas emissions, conserving resources, preventing pollution – whilst working with providers to increase our bio diversity net gain and achieve our net zero carbon scope 3 target in 2050.
- Increasing focus on the social factors that include human rights, fair labour practices, diversity and inclusion, and community engagement. Working with suppliers to look beyond the financial cost of a contract to consider how the services they procure can improve the economic, social and environmental wellbeing of an area (for more information see the Social Value Statement).
- Addressing the ethical and responsible management of providers and their suppliers. This includes transparency, accountability, and adherence to relevant laws and regulations.

This Strategy covers in most detail the first of these points, helping to minimise carbon emissions across the lifecycle of the councils property portfolio. In addition to emissions, the Strategy aims to promote circular thinking and practices within council owned buildings to minimise waste during construction and demolition, overall increasing sustainability.

The Strategy accounts for multiple aspects of sustainability in line with the above ESG factors with measures such as fabric improvements reducing energy consumption and therefore lifecycle emissions. Social impacts, such as ensuring the wellbeing of workers during construction, must also be accounted for to deliver highly sustainable projects.

The Strategy provides a framework to ensure these factors are incorporated during new development and refurbishment, ensuring benefits to the local community and supply chain across the council's projects.

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1.0 Strategy Framework

1.0.1 Strategy Decision Matrix and Planning Validation

Strategy Decision Matrix Scope

Each project will be assessed against the decision matrix (as shown on the next page) to determine the relevance of each Strategy. The matrix provided is a simplified approach to determining whether the proposed project is:

- **Minor Refurbishment & Maintenance including Small Extensions**
- **Major Refurbishment & Repurposing**
- **New Build and Large Extensions**

Once a strategy has been determined then it shall be followed for the duration,' unless there is project variation/creep during design and construction of the project.

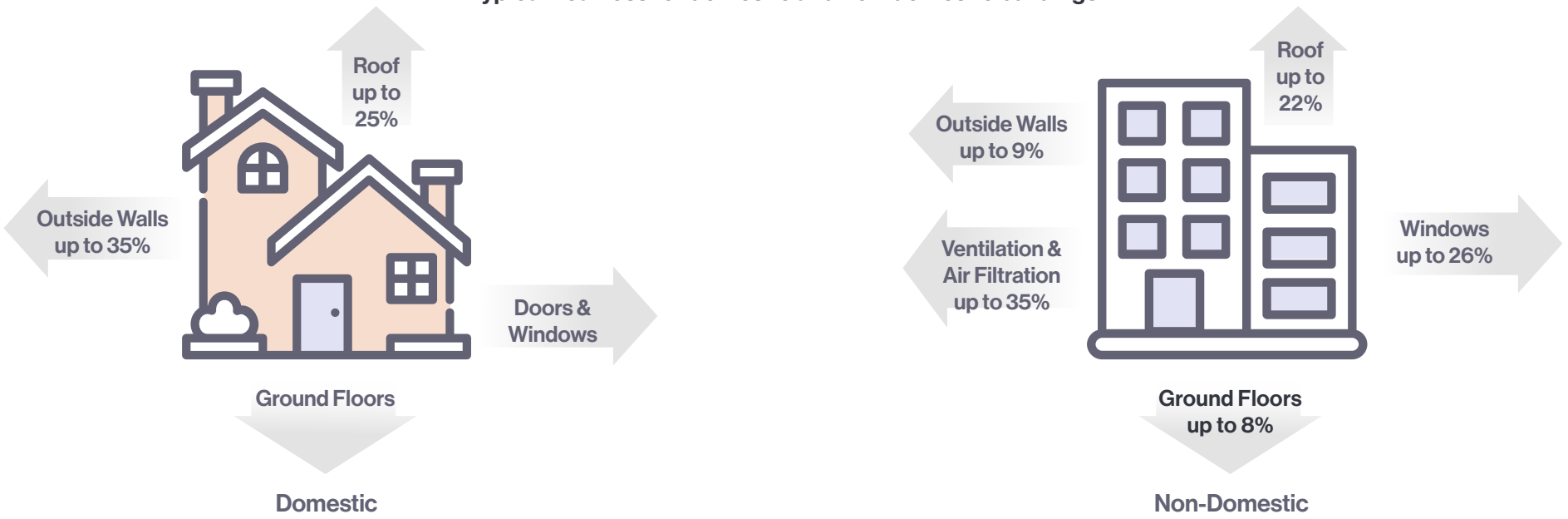
Refurbishment, repurposing, or extension projects will be classified as major or large and will therefore follow the Strategy B process (detailed overleaf) if they meet either of the criteria below. These criteria are defined in alignment with Building Regulations Approved Document L: Conservation of Fuel and Power Volume 2: Buildings other than dwellings.

1. The proposed extension has a total useful floor area that is:

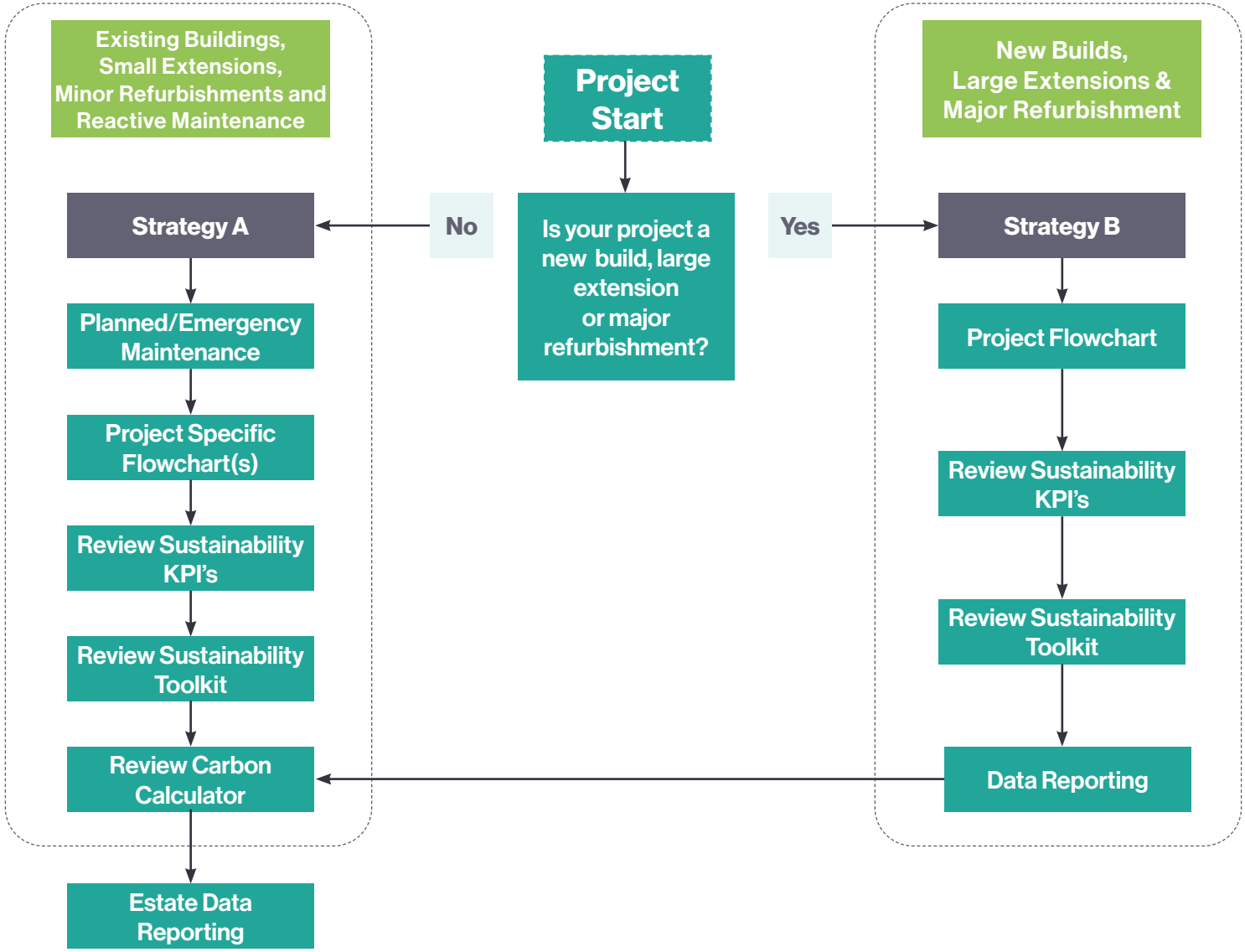
- Greater than 100 m², and
- Greater than 25% of the total useful floor area of the existing building.

2. The proposed extension exceeds 200 m³ of heated volume.

Typical heat loss for domestic and non-domestic buildings



1.0.1 Strategy Decision Matrix and Planning Validation



1.0.1 Strategy Decision Matrix and Planning Validation

Project variation/creep during design and construction is common as project briefs evolve. It is therefore difficult to determine how the strategies should be used to address each and every individual situation and will be largely subject to the Council Project Manager to implement the most appropriate Strategy. Below are examples of what is expected in certain situations:

Project change from a small extension to large extension or newbuild

Where this occurs, it is anticipated that the KPIs set out within the sustainability matrix are adhered to, however, it is the Council Project Manager who has the option to exclude criteria from the assessment should they wish. This will require a derogation and justification.

Project creep for refurbishment project

Refurbishment projects are anticipated to follow Strategy A and therefore the sustainability matrix will not be impacted.

Planning validation

Additional information should be provided as necessary as part of the planning submission. Planning validation requirements should follow the checklist incorporated within the W&F National and Local Planning Validation Requirements, July 2023. The content of the planning submissions and evidence should reflect the growing sustainability ambitions of the council.

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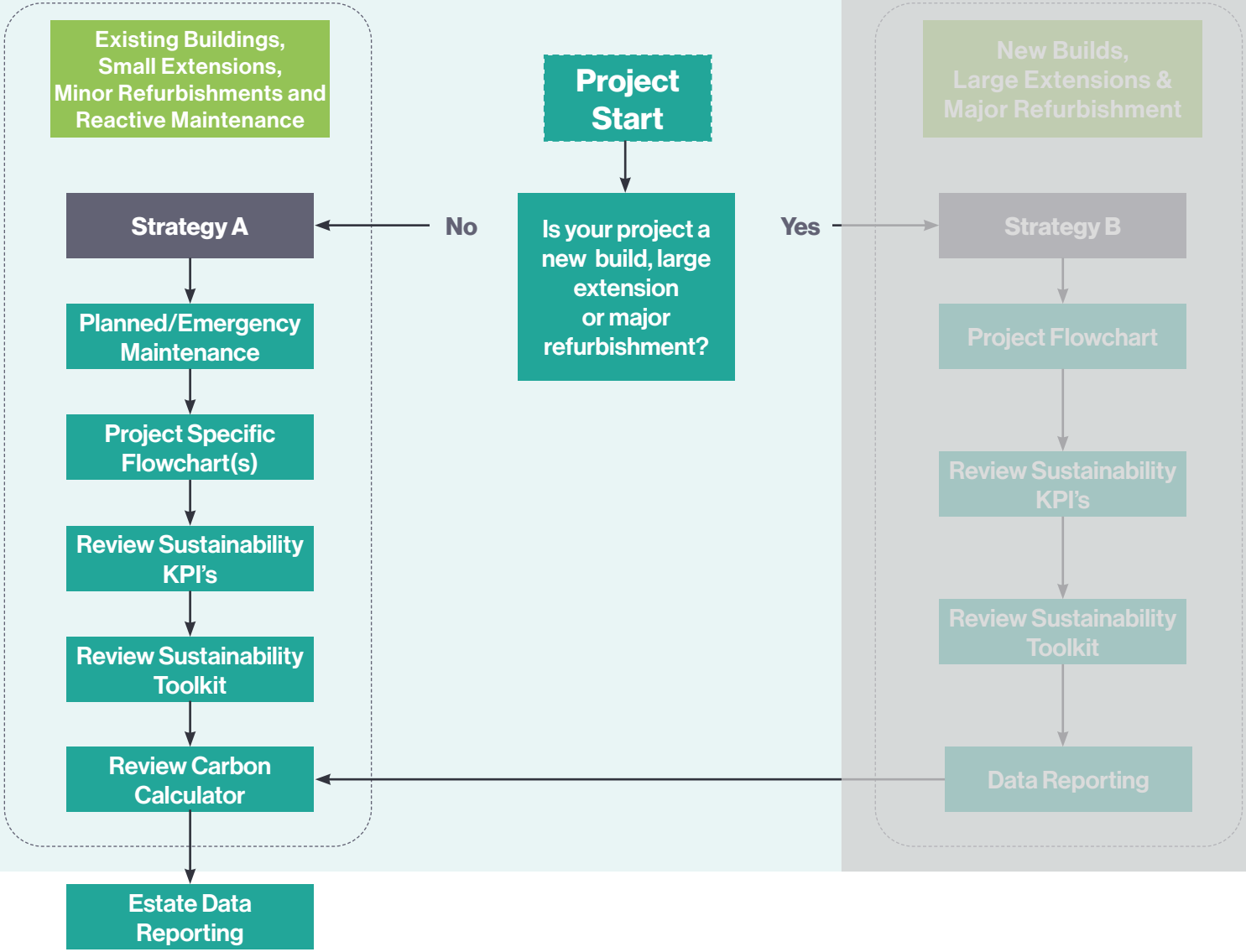
2.0 Strategy A

2.0.1 Strategy A Decision Framework

All consultants should provide an initial design proposal that meets the targets outlined in this strategy. If this cannot be achieved consultants are to provide justification. Lower-performing solutions should only be pursued if the Council Project Manager issues a formal instruction with a change of scope.



2.0.2 Introduction

Introduction

This Strategy outlines the key considerations given to sustainability for planned and preventative maintenance workstreams. These maintenance workstreams offer a significant opportunity to decarbonise the Council property portfolio.

The five benefits within this Strategy provide a comprehensive range of topics to be considered and incorporated within each project from conception through to operation.

Deviation from the sustainability objectives within this Strategy will require clear and robust justification. The design team must demonstrate how the proposed scheme encompasses delivery of a high quality and sustainable finished project, ensuring that it fully aligns with the standards of this Strategy and Carbon Management Strategy 2024-29.

What are the benefits

The Strategy has a number of benefits which include:

- Reducing energy consumption and carbon emissions throughout the property portfolio to align with the Carbon Management Strategy.
- Influencing design decisions to a holistic approach for decarbonising the existing estate.
- Embedding minimum standards of building fabric performance and system replacement/ modification.
- Removing ambiguity by providing designers with a framework and consistent brief to deliver the product that the Council is striving to achieve.
- Improving the Council building stock for future generations to thrive.

How will it be used?

This Strategy is intended to inform early design decisions within existing building projects to maximise decarbonisation across the Council estate. The Strategy looks to develop a holistic approach to building modifications and plant replacement incorporating energy efficiency and carbon reduction measures at every feasibility opportunity.

All consultants should provide an initial design proposal that meets the targets outlined in this strategy. If this cannot be achieved consultants are to provide justification. Lower-performing solutions should only be pursued if the Council Project Manager issues a formal instruction with a change of scope.

The adoption of Strategy A will result in energy and carbon savings, but it should be noted that these benefits will increase the overall project budget.

2.0.2 Introduction

Purpose

The purpose of this document is to deliver a consistent framework that all projects falling under Strategy A are to follow. To simplify the complex needs and projects of the estate, these have been grouped into the five categories shown in the table on the right.

At the outset of any applicable project, as identified through the 1.0.1 Strategy Decision Matrix, a feasibility study is to be undertaken that investigates the opportunity of including additional energy and carbon saving measures within the project scope.

By combining two or more of the work package categories, for example ceiling replacement with lighting upgrades, greater sustainability benefits can be achieved, as well as gaining economies of scale through construction.

These key areas offer great opportunity to support the decarbonisation of the estate.

Strategy A Work Packages:

2.1	Heating Replacement
2.2	Window/Doors Replacement & Fabric Improvements
2.3	Roof Replacement/Waterproofing
2.4	Ceiling Replacement
2.5	Lighting Replacement

The project manager is to follow the requirements of the Strategy A sub-section(s) that apply to the project, and those introduced via the feasibility study. By including these additional requirements within the base project scope there is great opportunity to support the decarbonisation of the estate.

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2.1 Heating Replacement

STRATEGY A

2.1.1 Heating Replacement

Planned Heating Plant Replacement

Projects involving the replacement of a heating plant should be taken as an opportunity to introduce additional energy efficiency measures to the building.

The primary objective is for the estate to move away from like-for-like boiler replacements and move to the electrification of building heat. The project design engineer shall provide a detailed report on how the building will be adapted to accommodate a low energy and low carbon solution.

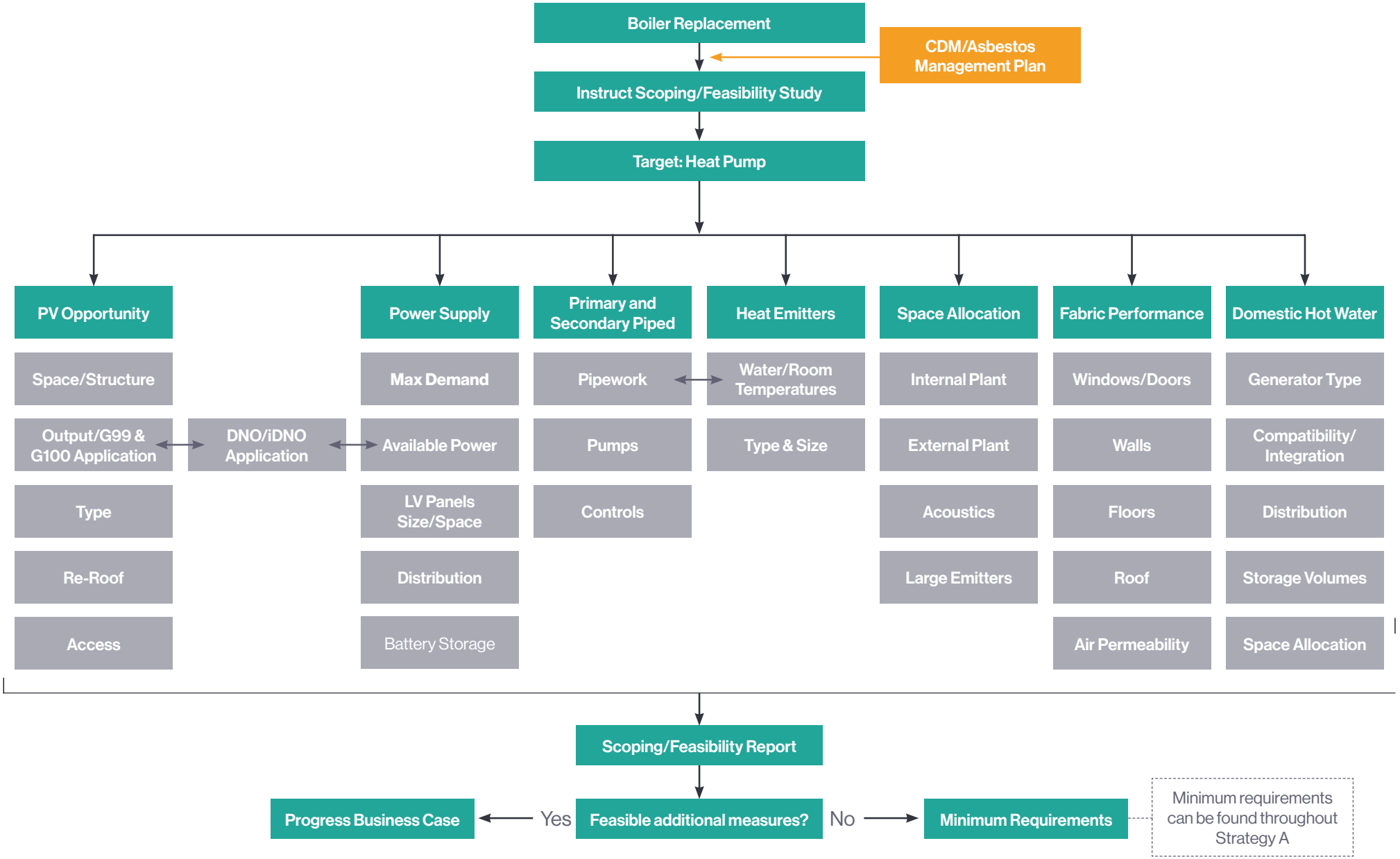
Heating plant / boiler replacement schemes across the estate provide an opportunity to improve not only the efficiency of generating heat, but also to include further improvements to reduce energy consumption and carbon emissions. The below flow chart identifies the key areas that are to be included in a feasibility study and provides a minimum requirement for reporting.

When boilers are proposed to be replaced, each scheme is required to investigate the feasibility of:

- Integrating alternative low carbon heating solutions
- Building fabric efficiency improvements, e.g. thermal insulation, replacement windows & doors
- Installing photovoltaic cells, and/or solar thermal systems. The council will, where possible, aim to use ultra-high efficiency monocrystalline solar PV panels that provide a yield of 25% as opposed to the 15% from polycrystalline panels.
- Future renewable technology enabling measures (preparatory works to facilitate future sustainable/energy reduction measures), e.g. pipework and heat emitter upgrades, power supplies to site.
- Consider whether they can connect to a heat network, either now or in the future. If so maintain or adopt a wet heating system with a centralised heating source and distribution system for each building, that enables a transition to the heat network

Where a low carbon, low energy solution is not practical then the minimum requirements of system replacement are to be adopted, including any feasible enhancements as identified in the surveys. Further guidance can be found in Section 2.1.2 Minimum Replacement Heating Requirements.

2.1.1 Heating Replacement



2.1.2 Minimum Replacement Heating Requirements

Minimum Replacement Heating Requirements

As an estate, the priority for replacement of heating systems
with a low carbon energy source are:

1. Oil Boiler
2. Gas Boiler and Gas Fired Domestic Hot Water Heaters
3. Biomass Boiler
4. Direct Electric Heating

Heating systems are to be replaced with a low carbon technology where feasible. Target plant efficiencies have been identified and should be improved on where possible.

Should the feasibility study identify that low carbon heating technologies are not feasible, at the very least, the minimum requirements identified in the adjacent table should be achieved.

Minimum energy efficiency requirements have been provided in the adjacent table for plant replacement schemes. It is anticipated that any replacement will achieve the highest standards possible at the time of procurement.

Minimum Plant Efficiencies

System Type	Efficiency Type	Efficiency
Air Source Heat Pump	Minimum Efficiency*	4.0 (SCoP)
Air Source Heat Pump	Target Efficiency*	4.5 (SCoP)
Gas Boiler	Minimum Efficiency (GCV)	93%
Gas Boiler	Target Efficiency (GCV)	97%
LPG	Minimum Efficiency (GCV)	88%
LPG	Target Efficiency (GCV)	93%
Oil Boiler	Minimum Efficiency (GCV)	93%
Oil Boiler	Target Efficiency (GCV)	93%
Gas Fired Air Heater	Minimum Efficiency	91%
Gas Fired Air Heater	Target Efficiency	91%
Oil Fired Air Heater	Minimum Efficiency	91%
Oil Fired Air Heater	Target Efficiency	91%
Gas Fired Radiant Heaters (luminous radiant heater—un-flued, non-luminous radiant heater—un-flued, non-luminous radiant heater—flued)	Minimum Efficiency (NCV—excluding fans and include radiant heater and associated flue/tail pipe within the building)	86%
Gas Fired Radiant Heaters (luminous radiant heater—un-flued, non-luminous radiant heater—un-flued, non-luminous radiant heater—flued)	Target Efficiency (NCV—excluding fans and include radiant heater and associated flue/tail pipe within the building)	91%

* Dependant on flow temperature

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2.2 Windows/Doors & Fabric Improvements

STRATEGY A

2.2.1 Windows/Doors and Fabric Improvements

Windows/Doors and Fabric Improvements

Window and door replacement and fabric improvement projects should be taken as an opportunity to introduce additional energy efficiency measures to the building.

Window, door and building fabric schemes across the estate provide an opportunity to improve not only the thermal envelope, but also to include further improvements to reduce energy consumption and carbon emissions.

The flow chart on the next page identifies the key areas that are to be included in a feasibility study and included in a scoping report.

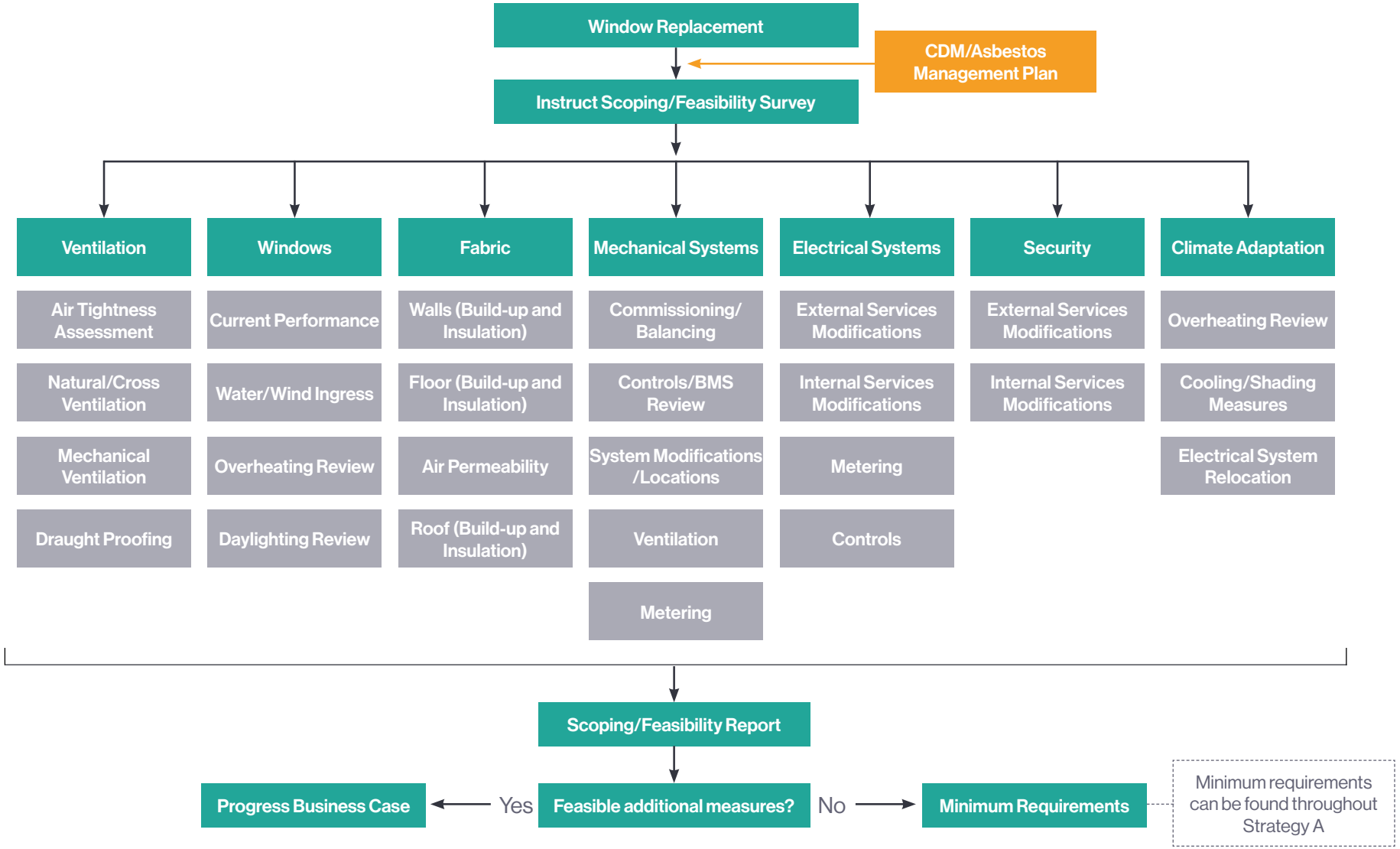
When thermal envelope improvements/ replacements are proposed, each scheme is required to investigate the feasibility of:

- Upgrading or installing enhanced HVAC controls
- Improving the BMS (including remote monitoring)
- Upgrades to security systems, particularly field equipment associated with windows and doors

Refer to Section 2.2.2 Strategy A - Windows/Doors and Fabric Improvements for further information on minimum performance requirements.

For new residential buildings, including homes, schools or other similar establishments, where people sleep on the premises, Building Regulations Approved Document O: Overheating should be followed.

2.2.2 Minimum Windows/Doors and Fabric Requirements



2.2.2 Windows/Doors and Fabric Improvements

Windows and Doors

Window and Door replacement schemes are required to meet the Net Zero Carbon U-value target identified within the below table. In addition to the minimum U-values identified below, further consideration is required to be given to BMS controls and commissioning of existing systems. It is essential that further commissioning is undertaken to the wider building services following implementation of a window replacement scheme.

Fabric Refurbishment

Building refurbishments will be subject to review of building fabric. Where a space is to be refurbished the building fabric shall be upgraded to the minimum standards set out below. The default position will be the Net Zero Carbon target. Variation from this standard will require justification.

Target Fabric Efficiencies Minimum energy efficiency requirements have been provided below for fabric improvement schemes.

Building Element	Type	Proposed Improvement	Minimum Building Regulations Compliance	Lower-Performance Example	Net Zero Carbon Target
Walls	Cavity Wall	External, cavity or internal insulation	0.26	0.18	0.12
Walls	Solid Un-Insulated	External or internal insulation	0.26	0.18	0.15
Walls	Timber Frame	External or internal insulation	0.26	0.18	0.15
Roofs	Flat Roof	Insulate	0.18	0.16	0.10
Roofs	Pitched Roof	Insulate	0.16	0.14	0.12
Floors	Suspended Floor	Insulate	0.18	0.15	0.15
Floors	Solid Floor Un-Insulated	Excavate and insulate	0.18	0.15	0.12
Windows and Doors	Windows	Replacement	1.60	1.20	0.80
Windows and Doors	Doors	Replacement	1.60	1.20	0.80
Vehicle Access Doors	Solid Doors	Replacement	1.3	0.9	0.5
General Envelope	Thermal Bridging	Mitigate where possible	n/a	n/a	n/a
General Envelope	Air Tightness (m3/hr/m2@50Pa)	Seal where possible	8	5	2

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2.3 Roof Replacement / Waterproofing

STRATEGY A

2.3.1 Roof Replacement / Waterproofing

Roof Replacement / Waterproofing

Projects involving the replacement or repair of roof structures should be taken as an opportunity to introduce additional energy efficiency measures to the building.

Roof replacement or repair schemes across the estate provide an opportunity to improve not only the roof structure and performance, but also to include further improvements to reduce energy consumption.

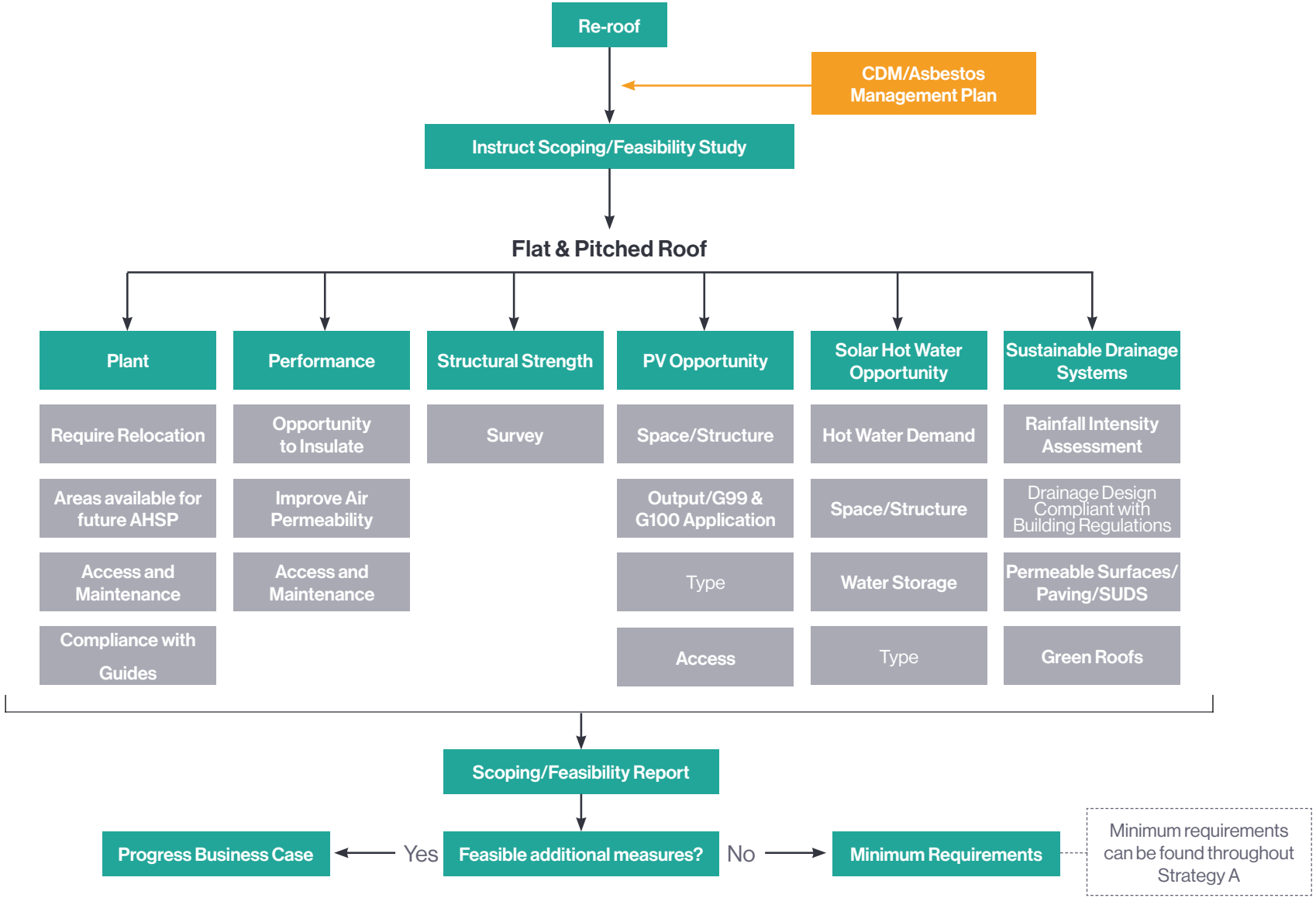
The below flow chart identifies the key areas that are to be included in a feasibility study and provides a minimum requirement for reporting.

When roofs are proposed to be replaced, each scheme is required to investigate the feasibility of:

- Insulating the roofs
- Installing photovoltaic cells, and/or solar thermal technologies
- Future renewable technology enabling measures (preparatory works to facilitate future sustainable/energy reduction measures), e.g. improved structural strength of roof to carry future loads such as PV or plant.
- Maintaining/installing adequate drainage systems capable of withstanding future weather patterns in line with climate change predictions

Further guidance can be found in Section 2.2.2 Strategy A - Windows/Doors and Fabric Improvements and the flowchart on the following page.

2.3.1 Roof Replacement / Waterproofing



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2.4 Ceilings

STRATEGY A

2.4.1 Ceiling Replacement

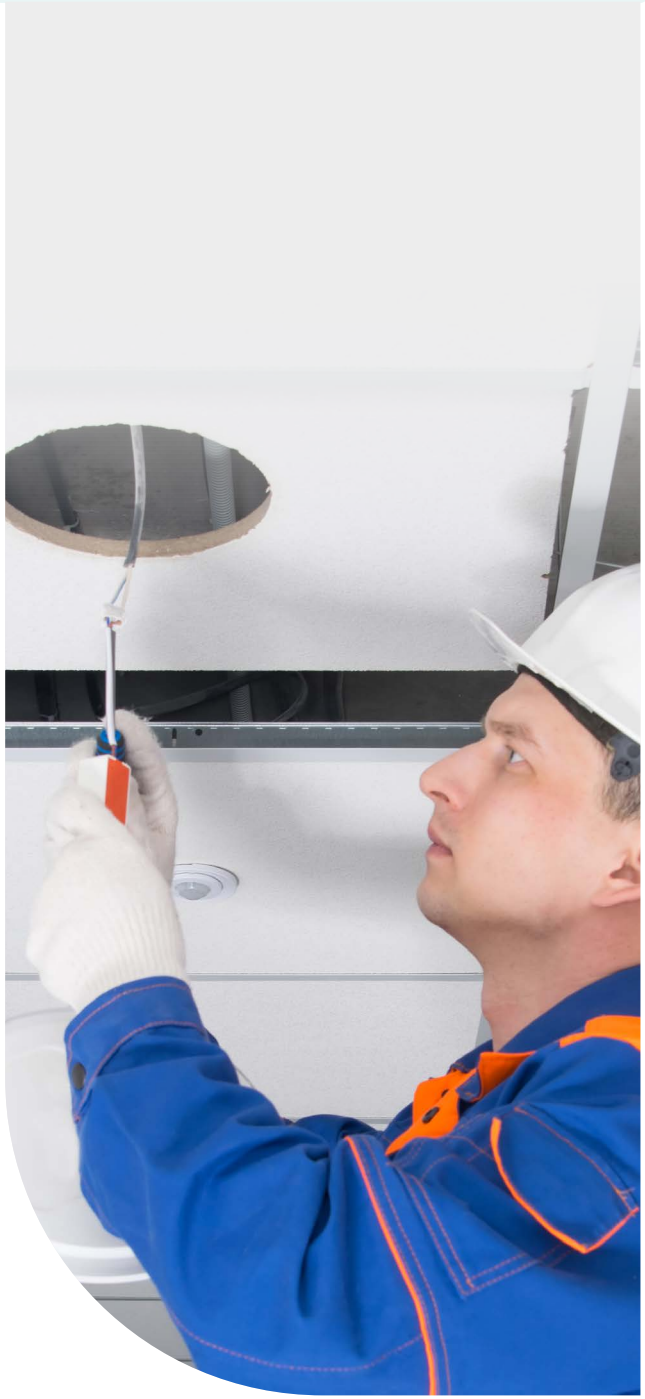
Ceiling Replacement

Ceiling replacement or upgrade projects should be taken as an opportunity to introduce additional energy efficiency measures to the building.

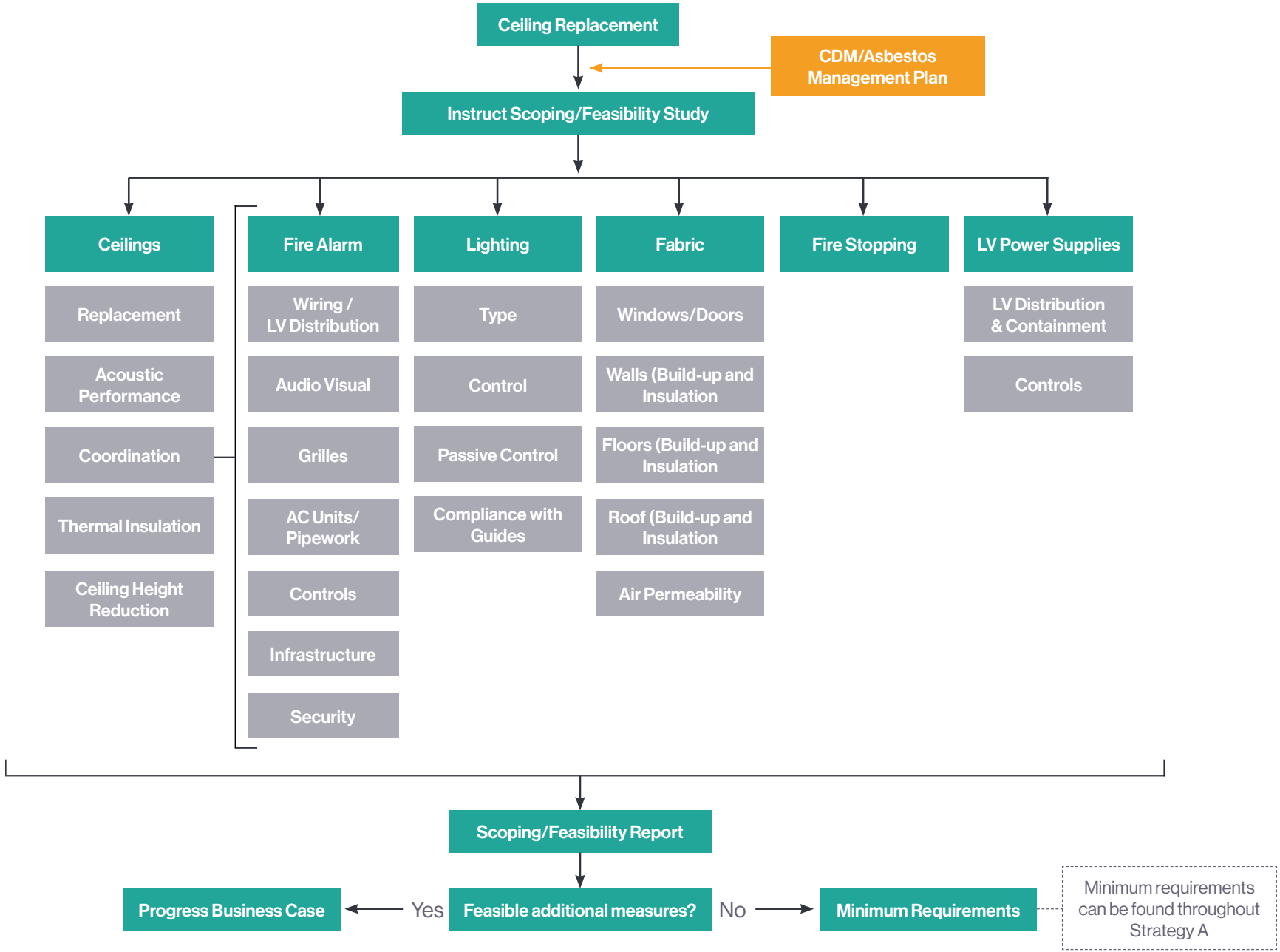
Ceiling schemes across the estate provide an opportunity to improve not only the aesthetic of a space but also further improvements to reduce energy consumption and carbon emissions. The below flow chart identifies the key areas that are to be included in a feasibility study and included in a scoping report.

When ceilings replacement is proposed, each scheme is required to investigate the feasibility of:

- Upgrading or installing enhanced lighting and controls
- Improving the efficiency of the building fabric
- Modernising the cable infrastructure and power distribution.



2.4.1 Ceiling Replacement



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2.5 Lighting

STRATEGY A

2.5.1 Lighting Replacement

Lighting

The intention is for the estate not to make minimal improvements when carrying out lighting replacement works. The design engineer shall provide a detailed report on how the building will be adapted to accommodate low energy and low carbon solutions.

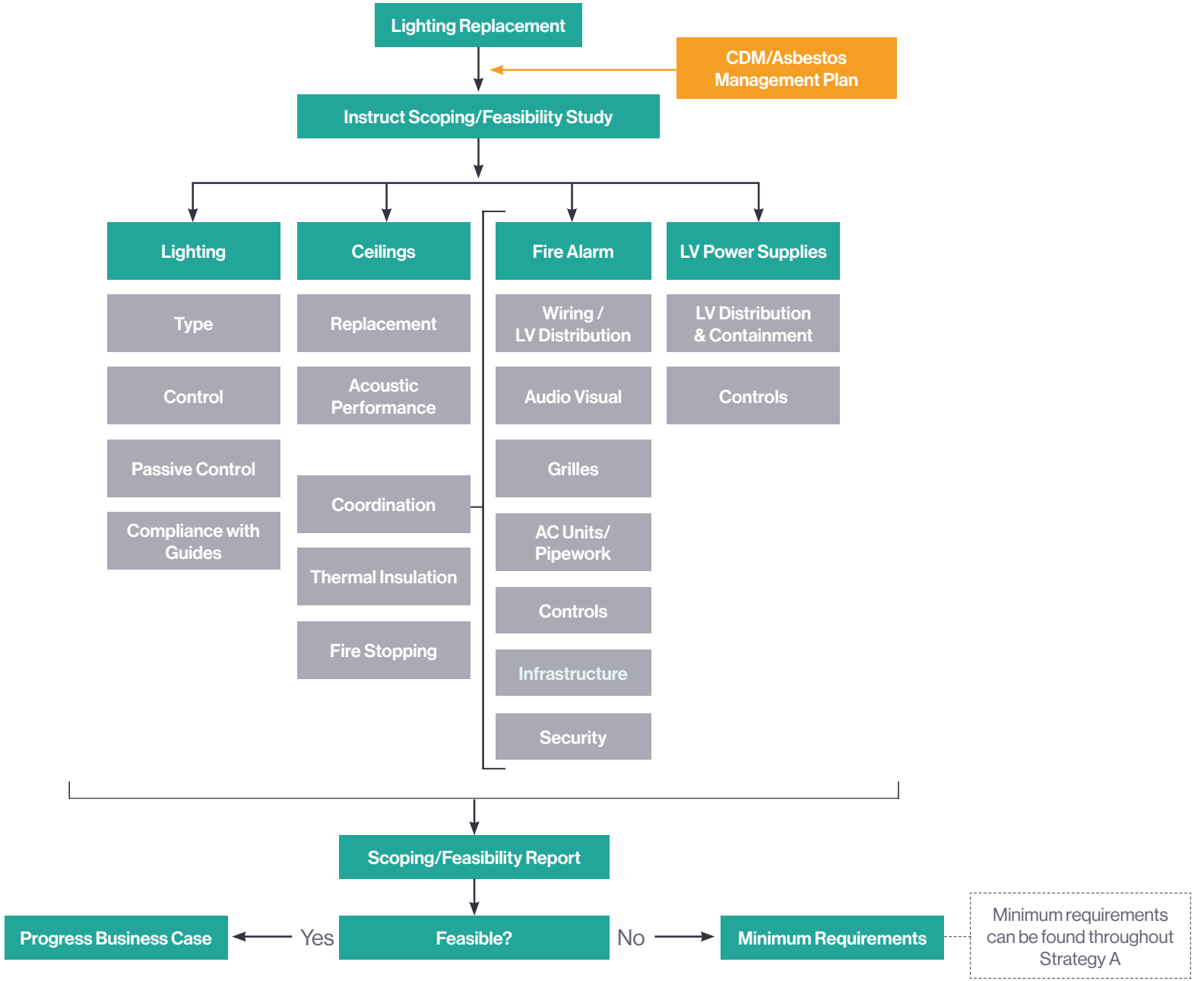
Therefore, to enable progressive development in line with this strategy, a feasibility survey will be instructed to understand the feasibility of integrating a fabric first approach in improving the energy efficiency measures of a building.

The flow chart on the following page provides a typical overview of the content of the feasibility survey. The feasibility survey is to incorporate carbon, energy, capital and operational costs to make an informed recommendation.

Where a low carbon, low energy solution is not practical then minimum requirements of system replacement are to be adopted and where identified, feasible upgrades are to be further progressed.

Refer to Section 2.5.2 Strategy A - Lighting Replacement for further information on minimum lighting performance requirements.

2.5.1 Lighting Replacement



2.5.2 Lighting Replacement

Lighting Replacement

Lighting replacements are to follow the minimum efficacies that are contained within the target lighting efficiency table. Prior to replacement of light fittings, consideration shall be given to re-using existing fittings, if efficient.

Lighting controls are to be provided where safe to do so. The Target Lighting Efficiency table identifies the minimum standards required for typical spaces.

Target Lighting Efficiencies Minimum energy efficiency requirements have been provided below.

Minimum Lighting Efficacy	Minimum Efficacy Lm/CW	Target Efficacy Lm/CW
Office	110	150
Industrial	120	180

Type	Automatic Control	Daylight Control
Office	Auto On / Auto Off	Yes
Meeting	Manual On / Auto off	Yes
Industrial	Manual Switching	Yes
Store	Auto On / Auto Off	N/A
Bedroom	Manual Switching	Yes
Circulation	Auto On / Auto Off	Yes (as applicable)

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2.6 Strategy A Conclusion

2.6.1 Strategy A Conclusion

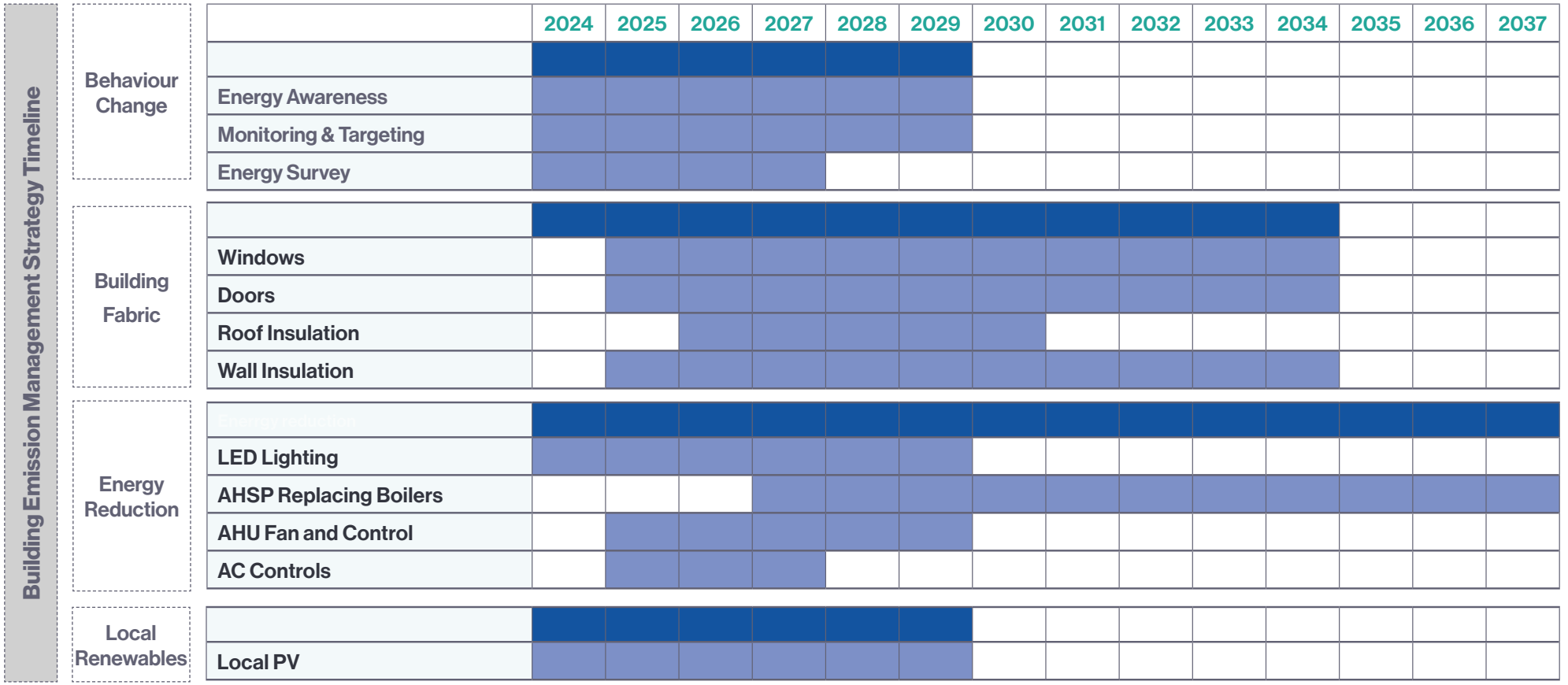
Strategy A has been developed to integrate sustainability within existing buildings that require short, medium and long term maintenance investment. The Strategy will help shape the Councils sustainability aspirations to move towards a net zero county whilst improving and delivering more sustainable places that people live, work and spend time. The Strategy has focused on five key areas of improvement in line the Carbon Management Strategy 2024-2029.

The Strategy has set out the requirements for improvements to key small works projects;

1. **Heating Replacement**
2. **Window/Doors Replacement & Fabric Improvements**
3. **Roof Replacement/Waterproofing**
4. **Ceiling Replacement**
5. **Lighting Replacement**

These improvements are to fall into the time periods determined within the Carbon Management Strategy and progress will be monitored against this programme.

2.6.1 Strategy A Conclusion



Cumbria County Council; Carbon Management Strategy 2024-2029 can be found here

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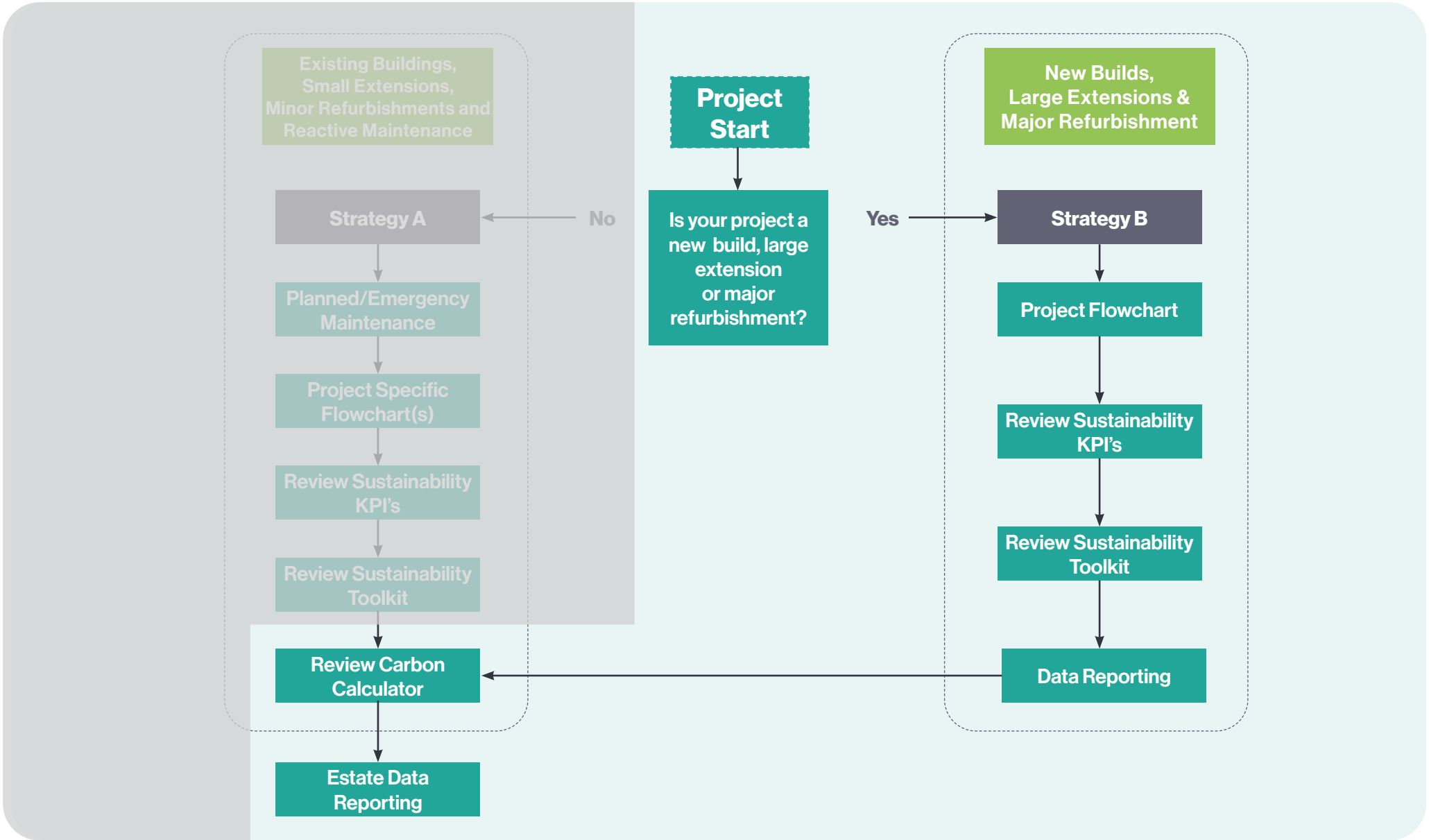
3.0 Strategy B

3.0.1 Introduction

Strategy B is intended to be used for larger projects including major refurbishment and repurposing, new build, and large extensions



3.0.1 Introduction

Purpose

The Council are striving to be leaders in achieving Net Zero carbon by 2037. This Strategy (Strategy B) has been developed to identify the key themes that all new build property, large extensions and major refurbishments are to achieve as a minimum to stimulate progressive sustainability goals.

The purpose of Strategy B is to define sustainability requirements for all proposed new build, large extensions and major refurbishments within the Council estate. These sustainability requirements cover a broad spectrum of criteria in order to develop good building design processes and to maximise project success, whilst also helping the Council deliver on its Net Zero ambitions.

Defining Success

The sustainability criteria of Strategy B have been broken into 10 indicators of success.

The Council Project Manager is to confirm the project sustainability targets at project inception. These targets will then be monitored throughout the design and construction process and into building occupation/operation. It is anticipated that the targeted level of success at project inception will be 100%, with the success of the project defined by the outcomes actually achieved.

Success will be monitored throughout the project and reported at each RIBA Stage and Project Gateway via a project summary report. This summary will identify the targeted and achieved criteria. It is essential that the project team are achieving compulsory deliverables at the required RIBA Stages. Adherence with the Sustainability Toolkit will demonstrate compliance with Strategy B.

The sustainability requirements have been categorised into the following ten criteria, including:

1. **Energy Use and Carbon Emissions**
2. **Transport**
3. **Materials, Resource Use and Supply Chain**
4. **Construction Waste**
5. **Water**
6. **Climate Resilience and Adaptation**
7. **Biodiversity**
8. **Wellbeing**
9. **Social Value**
10. **Certification**

3.0.2 Sustainability Toolkit

All assigned criteria will be compulsory at the end of the project. If the assigned criteria are found to be unobtainable, this is to be identified through the design process and discussed openly at design/client team meetings. Provided documented reasoning and evidence as to why the criteria can't be achieved is submitted, then consideration can be given to a derogation. The client team will review and provide feedback to the design team as to whether this is acceptable or whether further design development is required to secure the criteria. If agreed then the client team may choose to accept a derogation. This derogation will then be recorded within the sustainability toolkit for future reference.

Progress Summary Report

Criteria	Target	Achieved
Project Sustainability Project Score	0.00%	0.00%
Compulsory Stage Requirement	0.00%	0.00%
Derogations	0.00%	0.00%
Criteria Not Achieved	0.00%	0.00%
Criteria On Track	NA	0.00%
Criteria Under Review	NA	0.00%

Sustainability Toolkit

Open and save a copy to project file. **Sustainability Toolkit**

3.0.3 The Toolkit Process

The toolkit follows the below process. Each new build and large extension will be required to follow this process throughout the project life. The subsequent sections 03.2 through 03.11 give further detail on the 10 sustainability outcomes. These should be read alongside the Sustainability Toolkit to help in a full understanding of the credits.

RIBA Stage 0

Council Project Manager formulates the sustainability KPIs that are to be met for each project by allocating a grade of building within the Sustainability Toolkit. The grade of building is defined as either:

New Build: or
Major Refurb

▼
SIG Gateway 01

RIBA Stage 1

The design team Lead Consultant/Project Manager will be responsible for the co-ordination and completion of the sustainability toolkit (although not prescriptive, this may be a sustainability champion for the scheme). At RIBA Stage 1 the toolkit will be released to the tendering design team to make comment on the sustainability toolkit to ensure that sustainability themes are embedded within the design process.

Additional Consultants will be appointed as part of this stage to ensure that all targeted sustainability targets are pursued at the correct time.

▼
SIG Gateway 02

Additional Surveys will be costed at this stage. Refer to Planning Validation Matrix.

RIBA Stage 2

The design team Project Manager will be responsible for the co-ordination and completion of the sustainability toolkit.

All mandatory target criteria will be submitted by the Consultant team.

The toolkit will be complete and issued to the Council Project Manager with all relevant evidence.

RIBA Stage 3

The design team Project Manager will be responsible for the co-ordination and completion of the sustainability toolkit.

All mandatory target criteria will be submitted by the Consultant team.

The toolkit will be complete and issued to the Council Project Manager with all relevant evidence.

RIBA Stage 4

The design team Project Manager will be responsible for the co-ordination and completion of the sustainability toolkit.

All mandatory target criteria will be submitted by the Consultant team.

The toolkit will be complete and issued to the Council Project Manager with all relevant evidence.

▼
SIG Gateway 03

RIBA Stage 5

The Main Contractor Project Manager will be responsible for the co-ordination and completion of the sustainability toolkit.

Review on-going performance against each target.

RIBA Stage 6

The Main Contractor Project Manager will be responsible for the co-ordination and completion of the sustainability toolkit.

Collate handover data to review performance against targets.

RIBA Stage 7

The Council Project Manager to co-ordinate a 12 months post occupancy review of actual performance data.

1. Host lessons learnt workshop within the Council Project Management team and invite Consultants
2. Appoint further seasonal commissioning if required
3. Appoint further investigation into defects if required
4. Appoint further post occupancy evaluation if required.
5. Feed energy data back to the Carbon Calculator / Baseline

The adoption of Strategy B will result in energy and carbon savings, but it should be noted that these benefits will increase the overall project budget. The table below gives approximate guidance as to the costs and savings possible.

Strategy B	Strategy B £	Strategy B CO^2e
Current Regs	-	-
Major Refurb	7%	20%
New Build	15%	35%

Typical Uplift Factors for Sustainability Strategy B Measures

3.0.4 Roles and Responsibilities

Project Team

To successfully deliver this sustainability framework and toolkit, it is the responsibility of all members of the Project Team to embrace and deliver each criteria and play their role in achieving the sustainability themes.

Design Team and/or Main Contractor Project Manager

This role is the appointed lead of the proposed scheme. They will be responsible for management and reporting of criteria within the toolkit.

The appointed lead will:

- **Complete the sustainability tracker with all consultants evidence and submit in an easy to follow pack of information.**
- **Provide a brief progress update at submission within the tracker.**
- **Highlight derogations that have been sought and agreed within the design stage process.**
- **Identify any further specialist appointments required.**
- **Submit the tracker document at relevant stages.**
- **Challenge the project team to maximise sustainability criteria.**

Client Team

Council Team will:

- Set out the KPIs for each project through initial completion of the sustainability toolkit.
- Approve derogations sought throughout the process
- Challenge the design team to ensure that sustainability targets are achieved

Specialists

Certain criteria will require specialist expert knowledge to successfully deliver the criteria. These specialist consultants have been identified where possible however each individual project may require further investigation.

3.0.4 Roles and Responsibilities

The Sustainability Toolkit is to be used by the Project Manager to identify key project details and assign roles & responsibilities to the design team.

Project Set Up/Roles & Responsibilities within the Sustainability Toolkit

Project Set Up/Overview			
Project Details		**Roles & Responsibilities**	
Issue Date		**Council Project Manager**	
Project Standard		**Project Manager**	
Project ID		**Architect**	
Local Authority		**Principal Designer (CDM2015)**	
Project Name		**Principal Designer Building Regs (BSA 22)**	
Project Post Code		**Building Services Consultants**	
Site Latitude (DD)		**Structural Engineer**	
Site Longitude (DD)		**Civil Engineer**	
Building Typology		**Sustainability Consultant**	
Floor Area (GIA) (m2)		**Quantity Surveyor**	
Floor Area (NIA) (m2)		**Ecologist**	
		Landscape Architect	
		Contractor	
		MEP Sub Contractor	
		Acoustician	
		Air Quality Specialist	
		POE Consultant	
		Transport consultant	

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3.1 Energy Use & Carbon Emissions

STRATEGY B

3.1.1 Energy Use & Carbon Emissions Standards

Energy Use and Carbon Emission requirements have been defined within thirteen criteria. EC2 will be relevant to minor and major refurbishment and small extensions only.

Energy Use & Carbon Emissions					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
EC1	All new developments to be all electric i.e. no fossil fuel burn on site.	n/a	RIBA 2	RIBA 2	Report
EC2	A whole building assessment feasibility study shall be undertaken to establish whether electric systems can be incorporated for the whole building. If not viable for the whole building, the proposed refurbishment or extension shall be considered as an independent part and therefore electric systems shall be incorporated.	n/a	RIBA 2	RIBA 2	Report
EC3	A feasibility study of low and zero carbon technologies, including district heating networks (where applicable), and renewables shall be undertaken. Implement energy hierarchy - prioritise passive measures and on-site energy generation and storage.	n/a	RIBA 2-4	RIBA 4	Report
EC4	New build buildings are to reduce CO_2 emissions by at least 35% less than the level required by current Building Regulations Part L. Major refurb buildings are to reduce CO_2 emissions by at least 15% over current Building Regulations Part L.	n/a	RIBA 2-6	RIBA 6	Report
EC5	Undertake operational energy modelling using the CIBSE TM54 methodology as part of the design process.	n/a	RIBA 2-7	RIBA 7	Report
EC6	Assess CIBSE TM54 methodology against future DSY1 CIBSE weather files to establish future projected building performance.	n/a	RIBA 2-4	RIBA 4	Report
EC7	Projects to undertake a whole life carbon assessment of materials for developments, and contractors to map and monitor the footprint during the delivery phases to establish an as built whole life carbon assessment.	n/a	RIBA 5-6	RIBA 6	Report
EC8	Projects to target a reduction in embodied carbon in construction A1-A5 in accordance with building typology.	n/a	RIBA 2-6	RIBA 6	Report
EC9	Design and specify for disassembly and reuse. Develop a materials passport with End of Life (EoL) reuse scenarios for all materials and include in Whole Life Carbon Report. Such measures are to improve the circularity of council buildings.	n/a	RIBA 2-6	RIBA 6	Report
EC10	Contractor to procure 100% green tariff energy for construction works.	n/a	RIBA 5-6	RIBA 6	Commitment Statement at ITT
EC11	Provide an operational energy Net Zero Carbon feasibility assessment of stage B6 prior to planning. This should clearly set out how the scheme can be readily adapted in the future to achieve Net Zero Carbon.	n/a	RIBA 2-4	RIBA 4	Report
EC12	Develop an energy metering strategy to enable accurate reporting of the proposed building.	n/a	RIBA 3-6	RIBA 6	Drawing
EC13	Undertake Post Occupation Evaluations (POE) 12 months after full occupation or in accordance with relevant standards .i.e. NABERS.	n/a	RIBA 7	RIBA 7	Appoint a Consultant at PC

3.1.2 Energy Use and Carbon Emissions Standards

Reducing Energy Demand

All proposed developments will be required to be designed in accordance with the industry standard energy hierarchy.

The first approach will be to implement passive design measures across each building to optimise façade performance and encourage the use of natural ventilation. These passive opportunities and inevitably successes will be a significant driver towards achieving net zero carbon. Where natural ventilation is not entirely possible, then a mixed mode solution will be implemented within the building. This means that natural and passive design measures will be utilised where external weather scenarios permit and when these parameters move outside of the usable envelope, active measures will be used to meet comfort criteria. Whilst this enhances levels of comfort, flexibility and reduces energy, asset value is likely to increase.

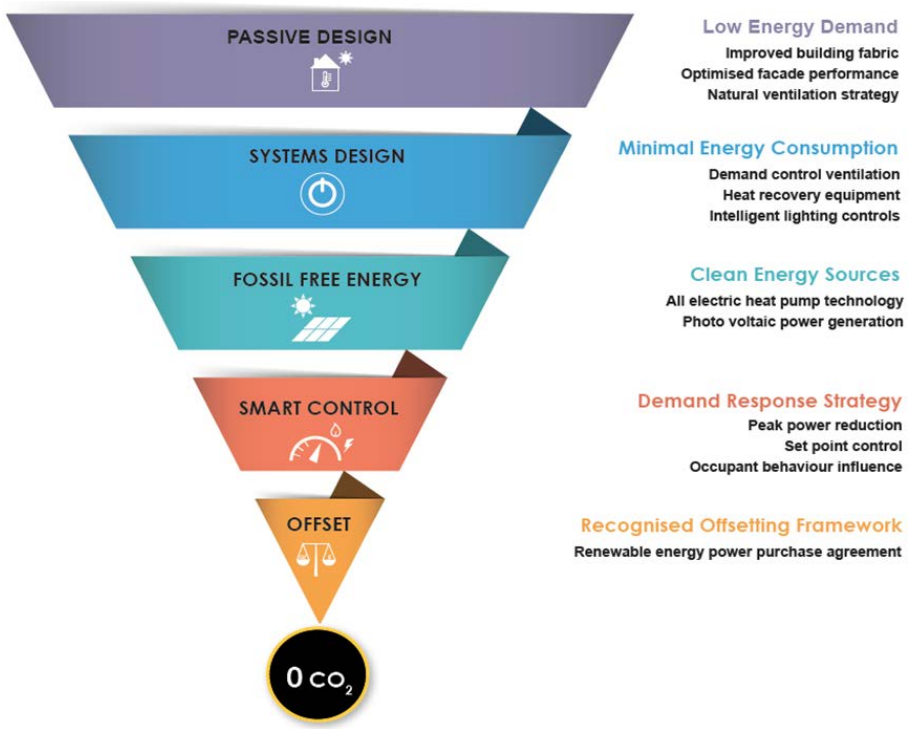
The second approach will be to minimise energy consumption through improved building design principles such as demand control ventilation, heat recovery equipment, intelligent lighting control, low energy lighting (LED) and significantly improved plant efficiencies.

The third approach is to negate the requirement to burn fossil fuel on site and to generate all hot water and heating requirements through electrical system design. Typical systems that are used to generate heating would be heat pump technology.

The fourth approach is to incorporate smart building controls to monitor and record energy consumption as well as offering grid optimisation.

These systems would bring further energy and carbon savings, better network resilience, more appropriate time of use consumption, financial resilience and improved resilience to the effects of climate change. These measures reduce the electricity consumption for certain periods.

The fifth approach is to offset remaining carbon emissions through a recognised offset framework. This would be the last opportunity and should be considered as the least effective contributor to a net zero carbon target.



Design approach for operational energy and carbon reduction.

3.1.2 Energy Use and Carbon Emissions Standards

Building Fabric

Building fabric has a significant impact on operational carbon. Therefore, fabric elemental U-values must exceed building regulations to reduce energy consumption. The target performance within the table below is a minimum requirement, however it is anticipated that projects will achieve higher levels of performance when demonstrated beneficial.

Fabric Performance Standard		
Element	**Major Refurb Standard**	**New Build Standard**
Walls (W/m2.K)	0.15	0.12
Floor (W/m2.K)	0.12	0.10
Roof (W/m2.K)	0.12	0.10
Windows and Doors (W/m2.K)	1.20	0.80
Curtain Wall Average (W/m2.K)	0.85	0.65
Air Tightness m3/h/m2 @ 50Pa	5	3

3.1.2 Energy Use and Carbon Emissions Standards

Building facades are to adopt the most efficient solution and therefore it is the designers responsibility to provide optioneering solutions to justify the outcome of the façade performance, building operation, glass to wall ratio and so on. The Council targets are defined for initial project guidance.

HVAC Performance

Target Window Areas						
Element	Highway Depot	Office	School	Library	Archives	Care Home
North	25 - 40%	25 - 40%	15 - 25%	15 - 25%	0%	10 - 20%
East	25 - 40%	25 - 40%	15 - 25%	15 - 25%	0%	10 - 15%
South	25 - 40%	25 - 40%	15 - 25%	15 - 25%	0%	20 - 25%
West	25 - 40%	25 - 40%	15 - 25%	15 - 25%	0%	10 - 15%

As a country, there is a shift from on site combustion of fossil fuel such as natural gas, oil and Liquid Propane Gas towards utilising greener sources of electricity distributed by the network power grid. This decarbonisation strategy enforces the utilisation of high efficiency electrical heat generation systems such as ground/water source heat pumps and air source heat pumps.

As further development of hydrogen becomes available to the market, consideration should be given to how these comparisons affect the overall carbon emissions, operational costs and fuel security etc.

System choices and efficiencies are likely to be determined by the limiting energy use intensity defined within this Strategy, however, the design team are required to select the most appropriate technologies that offer the most efficient operation. Consideration will also be given to life cycle and maintenance.

All new systems are to be electric. This is to benefit from the decarbonisation of the grid and available renewable technologies such as photovoltaic cells, solar hot water and electric diverter technology.

3.1.2 Energy Use and Carbon Emissions Standards

Further Indicator Guidance

Methodology for calculation of energy performance

Energy modelling should be carried out using a Dynamic Simulation Model (DSM) with advanced capabilities for HVAC systems and controls.

The methodology set out within **CIBSE TM54:2022 Evaluating operational energy use at the design stage** will be required to demonstrate energy consumption of commercial developments, including:

1. Highway Depot
2. Offices
3. Schools
4. Library
5. Archives
6. Care Homes

The methodology set out within the Passive House Planning Package (PHPP) shall be used to establish energy consumption for residential developments or residential areas including:

- Housing Developments
- Living Units

Energy Standards

If the project practical completion date is within the next band then the project will be required to achieve the minimum standards i.e. practical completion within 6 months of 2025, then the project is to achieve minimum 2025 to 2030 targets. However, it is encouraged that 2030 targets are incorporated within all projects.

The targets set for energy consumption have been aligned to the UK Green Building Council trajectory to net zero carbon, however these have been modified to align with the Council commitment to be the first net zero carbon county in the UK by 2037.

The Council have then further reduced the target energy consumption requirements to stimulate progressive decarbonisation beyond the Paris Proof 1.5 degrees target (See Energy Use Intensity on the next page).

3.1.2 Energy Use and Carbon Emissions Standards

A prediction of energy consumption with additional climate change weather files will be required. CIBSE provide a collection of weather data available to assess buildings. To predict future energy consumption it would be proposed to utilise Manchester future weather files unless demonstrated other local weather files are more reflective.

Energy Use Intensity (EUI):					Major Refurb	New Build
Building Type	**Scope**	**Metric**	**Interim Targets 2020-2025**	**Interim Targets 2025-2030**	**Council Target 2030-2037**	**Council Target 2037-2050**
Office	Whole Building Energy	kWh_e/m^2 (Net Internal Area) / Year	115	90	70	57
Office	Whole Building Energy	kWh_e/m^2 (Gross Internal Area) / Year	90	70	55	43
Office	Whole Building Energy	DEC Rating	C65	B50	B40	B20
Office	Base Building Energy	kWh_e/m^2 (NIA) / Year	70	55	35	27
Office	Base Building Energy	kWh_e/m^2 (GIA) / Year	55	45	30	23
Office	Base Building Energy	NABERS UK Star Rating	5	5.5	6	6
Office	Tenant Energy	kWh_e/m^2 (NIA) / Year	45	35	35	30
Highway Depot	Whole Building Energy	kWh_e/m^2 (GIA) / Year	18	14	9	6
School	Whole Building Energy	kWh_e/m^2 (GIA) / Year	86	72	60	43
Library	Whole Building Energy	kWh_e/m^2 (GIA) / Year	78	54	36	22
Archive	Whole Building Energy	kWh_e/m^2 (GIA) / Year	22	17	11	7
Care Home	Whole Building Energy	kWh_e/m^2 (GIA) / Year	50	42	35	29

	Major Refurb Standard	New Build Standard
Type	**Heating Demand Target (kWh/m^2/annum)**	**Stretch Target Heating Demand (kWh/m^2/annum)**
Space Heating Demand All Buildings	<15	<10

3.1.2 Energy Use and Carbon Emissions Standards

Embodied Carbon Assessment Methodology

New developments pose significant pressure on Climate Change, not only from operational energy emissions, but also embodied carbon emissions associated with construction building material, transport, construction activity, maintenance and replacement and end of life disposal. Therefore it is important to understand and deliver a building project that minimises carbon emissions from both a construction and embodied aspect.

The Council requires all major developments to consider and assess both operational and embodied carbon emissions over a whole lifecycle.

A circularity approach shall be adopted for all re-developments and consideration should be given to how existing assets can be retained and re-used as the first priority.

Embodied carbon standards for a range of building typologies have been provided (see table opposite).

Embodied Carbon Assessment Tools

One Click Life Cycle Assessment (OCLCA) and eTool are industry recognised tools for calculating the carbon emissions during a project's lifecycle by assessing the embodied carbon contribution of individual elements in a building. This software maps building element and equipment schedules against Environmental Product Declaration (EPD) databases to calculate the overall embodied carbon of the scheme.

Although this is not a restrictive list of software, it is intended to be a recognised list whilst also an attempt to limit variation in results between design teams.

The results are to be independently verified prior to submission by eTool or One Click LCA.

It is envisaged that this methodology will be updated from time to time as the industry progresses and understands more about challenges, opportunities and risks.

Embodied Carbon Standard		
Building Type	**$kgCO_2/m^2$ (GIA) Required**	**$kgCO_2/m^2$ (GIA) 2037 Target**
Office	<735	<300
Library	<745	<305
Archive	<745	<305
School	<530	<220
Care Home	<580	<240
Highway Depot	<635	<260

Source: Reference 'UK Net Zero Carbon Buildings Standard - Annex A

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3.2 Transport

STRATEGY B

3.2.1 Transport Standards

Transport standards will be required within all proposed developments. As Council travel plans are developed to accommodate future electric vehicle trends then the most onerous design standards will be adopted within each development.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
T1	Develop a Sustainable Travel Plan.	n/a	RIBA 3	RIBA 3	Report
T2	Provide a passive infrastructure assessment for electric vehicle provision. Consider renewable technologies, battery storage, power management, canopies etc.	n/a	RIBA 2-3	RIBA 3	Report / Drawings
T3	Target 20% of vehicle spaces to be designated to electric modes of transport. Carry out an assessment to determine the most appropriate Electric Vehicle Charging Point capacity/specification/load management solution. Provide load assessment & apply to utility provider.	n/a	RIBA 2-4	RIBA 4	Report / Drawings / Application
T4	Provide appropriate infrastructure capacity to convert 100% of vehicle spaces into electric vehicle spaces in the future. As a minimum 100% of parking bays are to be infrastructure enabled (ducting).	n/a	RIBA 2-4	RIBA 4	Load Assessment / Application
T5	Cycle facilities and infrastructures - provide weatherproof cycle storage and cyclist facilities, align with planning, (BREEAM and WELL as appropriate) and include within the Travel Plan. Provide maintenance stations, clothes drying and storage to encourage cycle/running/walking opportunities.	n/a	RIBA 2-4	RIBA 4	Drawing

In England, new buildings with parking spaces must have electric vehicle (EV) charging points, as required by Part S of the Building Regulations

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3.3 Materials, Resource Use & Supply Chain

STRATEGY B

3.3.1 Materials, Resource Use & Supply Chain Standards

Material efficiency is as important as operational energy consumption to reduce overall carbon dioxide emissions. The standard shown below encourages awareness of embodied carbon and procurement of low carbon solutions whilst encouraging re-use and recycled content of existing building materials.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
MRS1	Have an Environmental Management System in place appropriate to project scale.	n/a	RIBA 5-6	RIBA 6	Commitment Statement at ITT
MRS2	All timber and timber products used in construction (including site timber) shall be from sustainable sources accredited by the Forest Stewardship Council or the Pan European Forestry Council.	n/a	RIBA 5-6	RIBA 6	Commitment Statement at ITT
MRS3	Target the supply of materials with ISO14001 and where possible BES 6001 Very Good certification for plasterboard, aggregates, concrete, cement, asphalt, block-work and rebar.	n/a	RIBA 4-6	RIBA 6	Specification / Commitment Statement at ITT
MRS4	Design teams to explore modern methods of construction such as CLT or modular construction techniques.	n/a	RIBA 2-4	RIBA 4	Report
MRS5	Insitu concrete specification to be targeted to contain a minimum of 30% cement replacement such as Ground Granulated Blast-furnace Slag (GGBS) or similar product where possible.	n/a	RIBA 2-6	RIBA 6	Specification / Commitment Statement at ITT
MRS6	Suppliers outside of the EU to be checked against fair pay and labour standards.	n/a	RIBA 5-6	RIBA 6	Specification / Commitment Statement at ITT
MRS7	All granite / stone to be sourced through ETI (Ethical Trading Initiative) accredited companies.	n/a	RIBA 4-6	RIBA 6	Specification / Commitment Statement at ITT
MRS8	Where possible, the design team is to specify structures and MEP products with Environmental Product Declarations (EPD's).	n/a	RIBA 2-5	RIBA 5	Specification / Commitment Statement at ITT
MRS9	Design team to review and adopt the Living Building Challenge materials Red List where possible. Where products specified do not meet this requirement, this should be flagged to the client.	n/a	RIBA 4-6	RIBA 6	Specification / Commitment Statement at ITT
MRS10	Provide a pre-demolition audit and use the audit to explore where materials can be used onsite or elsewhere. Prioritise re-use of existing structure/materials and follow Circular Economy principles.	n/a	RIBA 2	RIBA 2	Commitment Statement at ITT
MRS11	Undertake a workshop and produce a Circular Economy Statement.	n/a	RIBA 2	RIBA 2	Report
MRS12	Target 10% of the total value of construction and fit out materials derived from recycled and reused content in the products and materials used.	n/a	RIBA 2-6	RIBA 6	Specification / Commitment Statement at ITT

3.4 Construction Waste

3.4.1 Construction Waste Standards

As part of net zero carbon, reduce and reuse of construction waste is fundamental. The strategy shown below defines the minimum standards expected for each development. Whilst this Strategy is focused on sustainability, the criteria provides an opportunity to reduce vehicle movements and costs.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
W1	95% of non hazardous demolition, strip-out, excavation, construction and fit-out waste by weight to be diverted from landfill and recycled or recovered for purposes other than energy generation.	Contractor	RIBA 2-6	RIBA 6	Commitment Statement at ITT
W2	Construction Waste shall not exceed 7.5 m^3/6.5 tonnes per 100 m^2 GIA for new-build development projects, and not exceed 4.5 m^3 or 1.2 tonnes per 100 m^2 GIFA for refurbishment projects.	Contractor	RIBA 6	RIBA 6	Commitment Statement at ITT
W3	Design out waste workshop to be held with the design team to identify and eliminate major areas of waste (including embodied waste). This must be documented and the outcomes measured at RIBA stages following this.	Architect	RIBA 2	RIBA 2	Report
W4	Contractors to reduce single use plastic packaging from material importation on site. Contractors are to report on single use plastic figures, highlighting reduction measures undertaken as part of construction.	Contractor	RIBA 5-6	RIBA 6	Commitment Statement at ITT

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3.5 Water

STRATEGY B

3.5.1 Water Standards

Water reserves are a fundamental aspect of delivering a sustainable development. The intention of this Strategy is to encourage sustainable water use whilst minimising waste and maximising water recovery at source.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
WA1	Incorporate water efficiency measures and/or water recycling to reduce mains water use by 40% compared to the BREEAM baseline.	n/a	RIBA 4	RIBA 4	Specification
WA2	Provide water metering and major/minor leak detection.	n/a	RIBA 3-6	RIBA 6	Drawings / Specification
WA3	Complete a cost benefit review of greywater and rainwater within the design and implement where feasible.	n/a	RIBA 2	RIBA 2	Report

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3.6 Climate Resilience & Adaptation

STRATEGY B

3.6.1 Climate Resilience & Adaptation Standards

This Strategy has been implemented within the sustainability toolkit to minimise the need for future building adaptation to achieve comfortable environments as a result of climate change and changing weather patterns. The Strategy sets out the standards for future landscaping and interventions to minimise heat island effects.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
CRA1	Full flood protection review undertaken and appropriate measures implemented within design. This should allow for 1 in 100 year + 30% event at a minimum. Major refurbishments to undertake feasibility study.	n/a	RIBA 2	RIBA 2	Report
CRA2	Prioritise natural ventilation strategies, and use CIBSE TM40 if natural ventilation is not possible. Ensure space achieves thermal comfort requirements.	n/a	RIBA 2	RIBA 2	Drawings / Report
CRA3	Perform a risk assessment to identify, evaluate and set out how climate impact risks are managed including adaptive comfort analysis incorporating climate change scenarios.	n/a	RIBA 2	RIBA 2	Report
CRA4	Where natural ventilation is being pursued, the design shall limit the risk of overheating in accordance with relevant standards and appropriate CIBSE future weather files.	n/a	RIBA 2-4	RIBA 4	Report
CRA5	For air-conditioned developments incorporate passive design measures to reduce the current cooling demand against current design summer year weather files. Design team to test proposed design solutions against future 2030 weather files and demonstrates how the building has been designed to be easily adaptable in the future using further passive design solutions.	n/a	RIBA 2-3	RIBA 3	Report
CRA6	Where possible the design should consider incorporating green walls and materials that reduce heat island effects.	n/a	RIBA 2-6	RIBA 6	Drawings / Report
CRA7	Landscape design to incorporate appropriate native, or of adding to wildlife, drought-tolerant planting. Planting that is not native should be sourced from within Europe.	n/a	RIBA 2-6	RIBA 6	Drawings / Report

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3.7 Biodiversity

STRATEGY B

3.7.3 Biodiversity Standards

Current Strategy

Context

For local authorities, biodiversity net gain links to a range of agendas including:

- Addressing the climate emergency
- Place-making
- Green infrastructure
- Access to greenspace and nature
- Mental and physical health and wellbeing
- Improving air quality
- Flood Risk and Sustainable Drainage Solutions
- Urban Heat Island Effect

Further information can be found at the

National Planning Policy Framework (NPPF), with planning practice guidance provided by the Ministry of Housing, Communities and Local Government.

The conservation and enhancement of the natural environment is a key strategic Strategy in the NPPF, and Chapter 15 of the NPPF sets out the Government's planning policies on this. Paragraph 180 states that 'planning policies and decisions should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils;
- Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'.

3.7.1 Biodiversity - Current Strategy

The NPPF also states in Paragraph 181 that 'plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries'.

Paragraph 186 of the NPPF identifies a number of principles that should be applied by local planning authorities in the determination of planning applications, which include:

- 'If significant harm to biodiversity resulting from a development cannot be avoided (through locating to an alternative site with less harmful impacts), adequately mitigated or, as a last resort, compensated for, then planning permission should be refused
- Development on land within or outside a Site of Special Scientific Interest (SSSI), and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSIs
- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.

Environmental Act

Under the **Environment Act 2021,** all planning permissions granted in England (with a few exemptions) will have to deliver a minimum of 10% Biodiversity Net Gain (BNG) from November 2023. Westmorland & Furness Council will, where viable, seek to achieve a higher target of 20% BNG. BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years. This sits alongside:

- A strengthened legal duty for public bodies to conserve and enhance biodiversity
- New biodiversity reporting requirements for local authorities, and
- Mandatory spatial strategies for nature: Local Nature Recovery Strategies or "LNRS".

Further information about mandatory BNG and the Environment Act is available at the **Biodiversity net gain now and in the future** website.

3.7.3 Biodiversity Standards

This Council sustainability toolkit has identified the minimum requirements for new build and proposed large extensions. Biodiversity net gain is a key KPI for each scheme and should be considered an important part of delivering sustainable development. The following standards are minimum requirements and the design team are encouraged to continually strive for improvements.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
BD1	Appoint suitably qualified ecologist to inform the early stage design and alignment with surrounding biodiversity and planting	n/a	RIBA 2	RIBA 2	Appointment and Net Gain Design Opportunities Note.
BD2	Maximise biodiversity net gains in accordance with current DEFRA Metric methodology, on site or nearby. Preferably this shall be on site.	n/a	RIBA 2-5	RIBA 5	Drawings / Report
BD3	Actively consider, and where possible, incorporate biodiverse green/brown roofs on all appropriate roof space.	n/a	RIBA 2-4	RIBA 4	Drawings / Report
BD4	Climbing plants, incorporating native species where possible, to be considered for available vertical surfaces to provide green walls for visible green infrastructure.	n/a	RIBA 2-4	RIBA 4	Drawings / Report
BD5	Install appropriate habitat for native and identified species (e.g. bird and bat boxes and insect walls).	n/a	RIBA 2-4	RIBA 4	Drawings / Report
BD6	Assess the opportunities to incorporate occupier organic food growing initiatives.	n/a	RIBA 2-4	RIBA 4	Report

3.7.3 Biodiversity Standards

Further Indicator Guidance

An ecologist will be appointed early within the design process in order to advise on any early design decisions required to avoid or mitigate biodiversity constraints and maximise the potential for enhancing biodiversity net gain on site. Implementation of the mitigation hierarchy is a fundamental requirement of biodiversity net gain, with consideration given to avoiding or reducing impacts before addressing compensation requirements. Where compensation is required, on-site should be prioritised to avoid localised reductions in biodiversity.

Where green roofs are proposed, renewable technologies will be encouraged to be integrated, such as photovoltaic cells and/or thermal solar hot water. A bio-solar roof combination provides benefits to the efficiency of generation, with evapotranspiration from the vegetation maintaining optimum temperatures during hot weather. The design team are encouraged to find a solution that considers all aspects and can demonstrate a well designed hybrid scheme.

As a minimum, the design team are to consider: maintenance, CDM, life cycle, financial impacts, feeding, watering, pests and pest control and fire resistance. In addition, consideration shall be given to water attenuation and flood prevention.

The metric proposed to embed biodiversity net gain within a scheme is the Defra Metric as this will become a legal requirement from November 2023. The most recent metric shall be used as a basis for each development and for consistency, once started, the metric used should be applied through a design phase. The metric that is implemented at the time of SIG Gateway 1 will continue throughout the proposed developments design and development process.

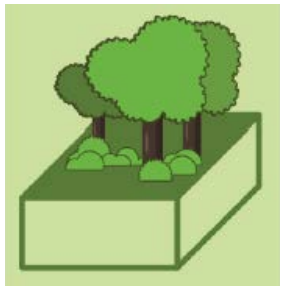
Standards

All new developments should achieve a minimum 10% biodiversity net gain based on the current DEFRA metric and seek to achieve 20% BNG where viable. At the time of writing the current metric was Biodiversity Metric 4.0.

3.7.3 Biodiversity Standards

1 Baseline

Establish habitats present on the pre-development site through survey.



2 Design Opportunities

Habitats
Semi-natural habitats, e.g. grassland/ woodland

Green Roof
Greening of roof/terrace aspects of buildings

Green Wall
Vertical greening to building facades or boundaries

Street Trees
Trees in public realm, potentially combined with SuDs

Urban Park
Semi-natural areas for biodiversity and amenity

3 Plan + Deliver

Option 1 - Avoid

Focus development in areas of negligible biodiversity value, e.g. existing buildings or hardstanding, and inclusion of design opportunities to deliver net gain.

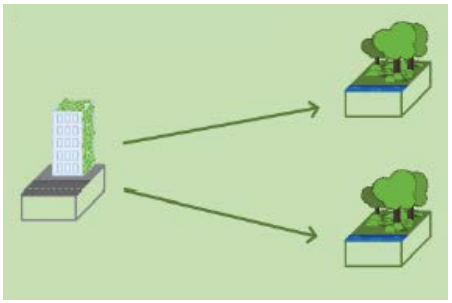
Option 2 - Mitigate

Focus development on areas of low biodiversity value, e.g. amenity landscaping, with design opportunities to mitigate habitat loss and deliver net gain.

Option 3 - Compensate

Where Options 1 and 2 are not feaible, deliver design opportunities to compensate for the loss and deliver a net gain through on-site and, where required, off-site opportunities on additional land or by tariff payment.

On-site



Off-site

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3.8 Wellbeing

STRATEGY B

3.8.1 Wellbeing Standards

Health and wellbeing are important factors when delivering highly sustainable developments. The strategy document encourages buildings to be optimised for people and the planet. The Strategy aims to support health, mental wellbeing and productivity whilst reducing energy and operational costs.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
WB1	Incorporate materials with lower levels of harmful emissions (e.g. low VOC content) specified. Ambient testing to be undertaken after practical completion.	n/a	RIBA 4	RIBA 4	Specification / Appointment
WB2	Natural light – carry out climate based daylight modelling adopting requirements of EN17037 for daylighting	n/a	Stage 2-3	RIBA 3	Report
WB3	Develop a plan to minimise local outside air, noise and light pollution impacts, and focus on achieving positive air quality status	n/a	Stage 2-4	RIBA 4	Drawings / Report / Specification
WB4	Active stairwells to be designed that are aesthetically pleasing to encourage active movement within the buildings.	n/a	RIBA 2	RIBA 2	Drawings
WB5	Adhere to all relevant guidelines for ventilation rates.	n/a	RIBA 2-4	RIBA 4	Drawings / Specification
WB6	Shower and changing room provision to be in line with best practice requirements.	n/a	RIBA 2-4	RIBA 4	Drawings / Specification
WB7	Commission an Indoor Air Quality Management Plan (IAQMP)	n/a	RIBA 2	RIBA 2	Report
WB8	Measure indoor air quality performance before and during occupancy	n/a	RIBA 7	RIBA 7	Report

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3.9 Social Value

STRATEGY B

3.9.1 Social Value Standards

This Strategy sets out the minimum requirements that each project shall commit to for the wider community benefit.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
SV1	Contractor to support at least three community engagement activities each year, where team members give time to a project that benefits and supports the local community.	n/a	RIBA 5	RIBA 5	Commitment Statement at ITT
SV2	Support and promote the provision of training and skills initiatives in the local area during the construction phase, with a minimum of two apprenticeships or work experience students during construction.	n/a	RIBA 5	RIBA 5	Commitment Statement at ITT
SV3	Development and implementation of a communication plan and community monitoring plan during the design and construction phases.	n/a	RIBA 5	RIBA 5	Commitment Statement at ITT
SV4	Develop a plan with deliverables with local groups and suppliers to support the education, employment and training strategy, incorporating upskilling and apprenticeships	n/a	RIBA 5	RIBA 5	Commitment Statement at ITT
SV5	100% of contractors and sub-contractors to pay all employees the Real Living Wage.	n/a	RIBA 5	RIBA 5	Commitment Statement at ITT

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3.10 Building Certification

STRATEGY B

3.10.1 Building Certification Standards

This Strategy has identified the minimum requirements for certification. Each development will require various certification and therefore it is important to commit each project to the relevant standards.

Standards					
Strategy Ref	**Strategy Summary/Description**	**Primary Design Team Ownership**	**RIBA Stage Requirements**	**Compulsory Stage Requirement**	**Indicative Deliverable Required by Design Team**
BC1	A minimum Energy Performance Certificate (EPC) rating of 'A' is targeted for all new-build development projects and a 'B' targeted for all major refurbishment projects.	n/a	RIBA 2-6	RIBA 6	Report
BC2	Office developments to undertake UK NABERS Design for Performance Assessment.	n/a	RIBA 2-7	RIBA 7	Report
BC3	Achieve a Building Research Establishment Environmental Assessment Method (BREEAM) Excellent and develop a pathway to achieving BREEAM Outstanding.	n/a	RIBA 2-6	RIBA 6	Report
BC4	Design team to review the feasibility of applying the WELL standard where applicable.	n/a	RIBA 2	RIBA 2	Report

3.11 Strategy B Conclusion

3.11.1 Strategy B Conclusion

Strategy B has been developed to integrate sustainability within new developments, large extensions and projects that require planning permission. The Strategy will help shape Westmorland & Furness Council's sustainability aspirations to move towards a Net Zero county whilst improving and delivering more sustainable places that people live, work and spend time.

The sustainability toolkit, embedded within the Strategy document, has been developed to measure the success of each scheme. Compliance with the sustainability toolkit will provide compliance with this Strategy document.

The Strategy has set out the requirements for:

1. Energy Use and Carbon Emissions
2. Transport
3. Materials, Resource Use and Supply Chain
4. Construction Waste
5. Water
6. Climate Resilience and Adaptation
7. Biodiversity
8. Wellbeing
9. Social Value
10. Certification

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4.0 Overall Conclusion

4.0 Overall Conclusion

The council is well placed to play a significant role in developing a position of net zero emissions and has set the target of net zero carbon emissions by 2037 for Scope 1 and 2.

A strategy to reach net zero is reflective of international, national and regional policy which set challenging targets for the delivery of net zero over the next two decades.

Scope 1 and 2 emissions are directly within the Council's control and are typically targeted by organisations taking steps to move towards a net zero position. Scope 1 and 2 activities include building energy use and are primary sources of emissions. The CO_2e emissions from natural gas consumption for building heating accounts for 59.3% of the GHG Scope 1 emissions.

Without any large-scale conversion of the building space heating and domestic hot water generation from natural gas to electric, there will be minimal reduction in these emissions. Heat loss mitigation and the electrification of heat should play a major role in minimising Scope 1 building related carbon emissions.

Scope 2 emissions are solely the result of electricity consumption over the baseline period. By 2035, in line with the UK Government's commitment to total UK electricity grid decarbonisation, the grid will be powered by renewable energy which will mean the council should achieve zero Scope 2 emissions by their target date of 2037.

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