# SUSTAINABILITY STATEMENT

## 551-557 Finchley Road

Proposed Residential-led Development

Produced by XCO2 for Hampstead Properties Ltd C/O Delta Properties

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## **EXECUTIVE SUMMARY**

The sustainability strategy for 551-557 Finchley has been developed with the design team to comply with the relevant environmental policies from the London Borough of Camden and the London Plan. Relevant energy policies have been addressed in the accompanying Energy Statement. The proposed development is expected to reduce on-site regulated carbon emissions by 52.1% with SAP10 emission factors and is targeting the achievement of BREEAM Domestic Refurbishment 'Excellent'.

This report outlines the sustainability strategy for the proposed development at 551-557 Finchley Road, in line with the requirements set out by the London Plan and the London Borough of Camden.

This sustainability statement is divided into three parts:

- Planning Policies;
- Sustainability Measures;
- Sustainability Standards.

The first part provides an overview of the site and planning policies applicable to this development in accordance with the London Plan and relevant London Borough of Camden policies.

The second part then outlines the sustainability strategy that has been employed to address the relevant planning policies.

The third part of this report outlines the sustainability measures that have been adopted to achieve a BREEAM Domestic Refurbishment 'Excellent' rating for the residential units.

Developments of five or more dwellings or 500 sqm of residential floorspace or above resulting from conversions, extensions and changes of use are encouraged to achieve an excellent rating in BREEAM domestic refurbishment. Non-residential developments (including conversions, extensions and changes of use) of 500 sqm or more are expected to achieve a BREEAM rating of excellent. For this scheme BREEAM domestic refurbishment is applicable (more than 5 units), although BREEAM for the non-residential is not (<500sqm). A summary of the pre-assessment credits for the BREEAM assessment are provided at the end of the BREEAM section.

The key sustainable design and construction measures incorporated in the proposals are summarised below, following the London Plan Sustainable Design and Construction SPG:

Effective Resource Management

- Effective re-use of previously developed land;
- Fabric improvements to minimise heat losses;
- The incorporation of renewable technologies via the specification of air source heat pumps;
- The commercial units will be installed with water meters and to each unit to monitor consumption.

Adaptation to Climate Change

- Insulated pipework and efficient lighting will minimise heat generated internally;
- An energy assessment has been carried out and the estimated CO<sub>2</sub> savings exceed 35%;
- The development will achieve an efficient building fabric with thermal mass, air tightness levels and U-values/y-values within the Building Regulation standards;
- Energy efficiency will be maximised through passive and active measures as far as technically and financially possible;
- Low energy fittings throughout the scheme.

Pollution Management

- To reduce air pollution from vehicular transport, the development has no on-site parking;
- The lighting design of the proposed development will follow the recommendations if the Institution of Lighting Engineers'



551-557 Finchley Road Page 5 of 31 Guidance Notes for the Reduction of Obtrusive Light (2005), to minimise light pollution.

- Air pollution risks from construction and demolition activities on site will be minimal in line with the SPG on the Control of emissions from construction and demolition; and
- NOx emissions will be minimised as far as possible and within policies. The heating system incorporates a combination of ASHP and gas boilers.

In summary, the proposed development at 551-557 Finchley Road meets the targets set out by London Borough of Camden and the Greater London Authority (GLA). The development could achieve a BREEAM score of 72.3%, exceeding the BREEAM 'Excellent' target of 70% for BREEAM Domestic Refurbishment.

The number of credits obtained in the BREEAM preassessment/sustainability measures incorporated reflect the client and design team's aspirations in integrating sustainability measures and demonstrates that the project is designed to exceed the planning policy sustainability requirements.



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## SITE

The site is located in the London Borough of Camden and occupies a prominent position on Finchley Road. The site has excellent transport links to and from other areas of London, including the City, Kings Cross, and Central London.

The site is located on Finchley Road in the London Borough of Camden. The site is bound by Finchley Road to the east, and mansion housing blocks to the west. The terrace of buildings continues to the north of 551-557, with detached three storey houses to the south.

The proposal is for part change of use from Use Class E and F1 and remodelling of the existing building to

provide residential apartments (C3) along with flexible commercial (Class E)/ pub/ wine bar/ drinking establishments (Sui Generis) uses, alterations including partial demolition and extensions at the rear at lower ground, ground and first floor levels, extension to provide an additional storey at roof level, levelling of the lower ground floor level, remodelling and restoration of front façade, amenity space, cycle parking and all associated works (Site does not include 1st to 3rd floor of 551 Finchley Road)



Site Location



Figure 1: Approximate location of application site



## **PLANNING POLICY**

The 551-557 Finchley Road development has been designed in line with the requirements set out by the London Borough of Camden as well as the London Plan<sup>1</sup>.

The relevant planning policy documents for sustainability are:

- The London Plan (2016);
- Draft New London Plan (2019);
- Camden Local Plan (2017)
- Camden Council Core Strategy (2010-2025);
- Camden Development Policies (2010-2025);
- Mayor's Sustainable Design and Construction SPG (2014);
- Mayor's Housing Supplementary Planning Guidance (2016).
- Camden Planning Guidance: Energy Efficiency and Adaptation (2019).

## THE LONDON PLAN

The London Plan is the overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years.

The overarching policy setting out the principles of sustainable design and construction to be incorporated in major proposals is Policy 5.3:

# POLICY 5.3 SUSTAINABLE DESIGN AND CONSTRUCTION

"Planning decisions:

*B.* Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process. C. Major development proposals should meet the minimum standards outlined in the Mayor's supplementary planning guidance and this should be clearly demonstrated within a design and access statement. The standards include measures to achieve other policies in this Plan and the following sustainable design principles:

- a. minimising carbon dioxide emissions across the site, including the building and services (such as heating and cooling systems)
- *b.* avoiding internal overheating and contributing to the urban heat island effect
- *c. efficient use of natural resources (including water), including making the most of natural systems both within and around buildings*
- *d. minimising pollution (including noise, air and urban runoff)*
- *e. minimising the generation of waste and maximising reuse or recycling*
- f. avoiding impacts from natural hazards (including flooding)
- *g. ensuring developments are comfortable and secure for users, including avoiding the creation of adverse local climatic conditions*
- *h.* securing sustainable procurement of materials, using local supplies where feasible, and
- *i.* promoting and protecting biodiversity and green infrastructure."

Complementary to, and expanding upon Policy 5.3 are the following London Plan policies:

- Policy 5.2 Minimising Carbon Dioxide Emissions
- Policy 5.5 Decentralised Energy Networks
- Policy 5.6 Decentralised Energy in Development proposals
- Policy 5.7 Renewable Energy
- Policy 5.9 Overheating and Cooling

<sup>1</sup> The London Plan, Further Alterations to the London Plan (March 2015) and Housing Standards Minor Alterations to the London Plan (March 2016), herein referred to as The London Plan



- Policy 5.11 Green Roofs and Development Site Environs
- Policy 5.12 Flood Risk Management
- Policy 5.13 Sustainable Drainage
- Policy 5.15 Water use and Supplies
- Policy 5.18 Construction, Excavation and Demolition Waste.

Specific requirements on the use of energy and water resources, applicable to all major proposals, are as follows.

## POLICY 5.2 MINIMISING CARBON DIOXIDE EMISSIONS

"...Major developments [must] meet the following targets for carbon dioxide emissions reduction in buildings. These targets are expressed as minimum improvements over the Target Emission Rate (TER) outlined in the national Building Regulations leading to zero carbon residential buildings from 2016 and zero carbon non-domestic buildings from 2019."

## POLICY 5.15 WATER USE AND SUPPLIES

"...setting an upper limit of daily domestic water consumption to 105 litres/head for residential developments (excluding a maximum allowance of 5 litres/head/day for external water consumption)."





## EMERGING LONDON PLAN (2019)

The Draft London Plan, last updated in December 2019, is a material consideration in planning decisions. The New London Plan is scheduled to be published in 2020. The current 2016 consolidation Plan is still the adopted Development Plan.

The following paragraphs highlight the key changes and additional requirements stemming from emerging policies.

## **GREENHOUSE GAS EMISSIONS**

Policy GG6 (Increasing efficiency and resilience) sets a positive direction for the new Draft Plan in terms of ambitious new greenhouse gas emission targets. This policy references London's target to become zero carbon by 2050 and the need to design buildings and infrastructure for a changing climate. To drive this change both residential and non-residential schemes will need to be net zero-carbon (via offset payments). At least 35% of this reduction should be made on site for major developments, with residential developments expected to achieve at least a 10% and non-residential at least a 15% reduction in emissions through energy efficiency measures alone (Policy SI2).

In a major departure from the previous London Plan, calculations will be required to include both regulated and unregulated emissions at each stage of the energy hierarchy. Furthermore, major developments should submit details of the method with energy performance and carbon dioxide emissions monitored postconstruction for at least the first five years of building operation.

### **ENERGY INFRASTRUCTURE**

In addition to upgrades to the lean and green stages of the energy hierarchy the clean stage has also been enhanced. A "be seen" stage has also been introduced so the development energy performance is monitored and reported. Most notably, all major developments within Heat Network Priority Areas should utilise a communal low-temperature heating system.

Policy SI3 (Energy infrastructure) recommends zeroemission or local secondary heat sources technology as step on the heating hierarchy but prioritises a connection to local existing or planned heat networks where feasible, for selecting communal heating systems. Where developments are utilising lowemission CHP this policy requires them to demonstrate that the CHP will *enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network.* 

## MATERIALS, WASTE & LIFE-CYCLE CARBON

Policy SI2 (Minimising greenhouse gas emissions) mentions the requirement for Energy Strategies to include a *whole life-cycle carbon emissions* assessment and actions to reduce life-cycle carbon *emissions*. This is to fully capture the development's carbon impact: unregulated and embodied emissions, and emissions associated with maintenance, repair and demolition will be considered. This may result in more sustainable material choices at design stage and could lead to natural and recycled materials alongside the more widely recognised cross-laminated timber becoming more commonplace in the capital. This section also links with Policy SI7 (Reducing waste and supporting the circular economy), whereby materials are retained in use at their highest value for as long as possible to minimise waste. All referable applications should submit a Circular Economy Statement, intended to cover the whole life cycle of development.

### AIR QUALITY

The new draft Plan addresses this crucial area by requiring large-scale development proposals to demonstrate how they maximise benefits to air quality and the measures or design solutions they will implement to minimise exposure to air pollution.

In practice this will mean that a preliminary Air Quality Assessment (AQA) to be carried out for all major developments prior to any design work taking place, with a full AQA submitted in support of the planning application. In addition, the new draft London Plan supports electric vehicle charging points and other transport alternatives to achieve carbon-free travel by 2050.

It should be noted that, as the policies in the Draft London Plan are not yet adopted, the following sections demonstrate compliance with the currently adopted plan.



# SUSTAINABLE DESIGN AND CONSTRUCTION SPG

The Sustainable Design and Construction SPG, adopted in April 2014, provides additional information and guidance to support the implementation of the Mayor's London Plan. The SPG does not set new policy, but explains how policies in the London Plan should be carried through into action.

It covers the following areas:

- Resource Management
- Adapting to Climate Change and Greening the City
- Pollution Management

This SPG provides a basis for sustainable design in London and is used as the overarching structure of this report. Where additional local policies are addressed by these areas this has also been indicated.



CONSTRUCTION SUPPLEMENTARY PLANNING GUIDANCE

APRIL 2014

LONDON PLAN 2011 IMPLEMENTATION FRAMEWORK

MAYOR OF LONDON

## **HOUSING SPG**

This document provides guidance on the implementation of housing policies in the London Plan and it replaces the 2012 Housing SPG.

Part 2 covers housing quality and updates London housing standards to reflect the implementation of the government's new national technical standards through the Minor Alterations to the London Plan (2015-2016).

As design affects the quality of life, health & wellbeing, safety and security of users and neighbours, this guidance is integral to sustainable development and will be cross-referenced as relevant in the subsequent sections.



MARCH 2016

LONDON PLAN 2016 IMPLEMENTATION FRAMEWORK



## LOCAL BOROUGH POLICY

## CAMDEN LOCAL PLAN (2017)

## Policy CC2 Adapting to climate change

The Council will require development to be resilient to climate change. All developments should adopt appropriate climate change adaptation measures such as:

- a. the protection of existing green spaces and promoting new appropriate green infrastructure;
- b. not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;
- c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
- d. d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy. Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

Sustainable design and construction measures: The Council will promote and measure sustainable design and construction by:

- e. ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;
- f. encourage new build residential development to use the Home Quality Mark and Passivhaus design standards;
- encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dwellings to achieve "excellent" in BREEAM domestic refurbishment; and
- expecting non-domestic developments of 500 sqm of floorspace or above to achieve "excellent" in BREEAM assessments and encouraging zero carbon in new developments from 2019.

## Policy CC3 Water and flooding

The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. We will require development to:

- a. incorporate water efficiency measures;
- b. avoid harm to the water environment and improve water quality;
- c. consider the impact of development in areas at risk of flooding (including drainage);
- d. incorporate flood resilient measures in areas prone to flooding;
- e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
- f. not locate vulnerable development in floodprone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable. T

### Policy CC4 Air quality

The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan.

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact.

## Policy CC5 Waste

The Council will seek to make Camden a low waste borough. The council will:

a. deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the



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- safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and
- c. make sure that developments include facilities for the storage and collection of waste and recycling.

### Policy T2 Parking and car-free development

The Council will limit the availability of parking and require all new developments in the borough to be carfree. They will:

- not issue on-street or on-site parking permits in connection with new developments and use legal agreements to ensure that future occupants are aware that they are not entitled to on-street parking permits;
- b. limit on-site parking to:
  - i. spaces designated for disabled people where necessary, and/or
  - ii. ii. essential operational or servicing needs;
- c. support the redevelopment of existing car parks for alternative uses; and resist the development of boundary treatments and gardens to provide vehicle crossovers and on-site parking.

#### **BREEAM** and **BREEAM** domestic refurbishment

BREEAM (Building Research Establishment Environmental Assessment Method) is a tool that enables us to assess the environmental sustainability of a development.

BREEAM and BREEAM domestic refurbishment contains the following categories: Energy, Water, Materials, Waste, Surface Water, Management, Transport, Land use, Ecology, Health and Wellbeing, and Pollution. Each category contains credits that can be obtained by implementing a sustainable design or construction measure.

The securing of the credits in these categories is considered to have the greatest environmental benefits and more information can be found in our supplementary planning document Camden Planning Guidance on sustainability. The sustainability of residential development arising from conversions, extensions and changes of use can be assessed through the use of BREEAM domestic refurbishment. We will encourage developments of five or more dwellings or 500 sqm of residential floorspace or above resulting from conversions, extensions and changes of use to achieve an excellent rating in BREEAM domestic refurbishment.

The Council will expect the application of a BREEAM assessment to non-residential developments (including conversions, extensions and changes of use) of 500 sqm or more. We will expect these to achieve a BREEAM rating of excellent and will encourage zero carbon from 2019.





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## CAMDEN CORE STRATEGY (2010-2025)

# CS13 – Tackling climate change through promoting higher environmental standards

Reducing the effects of and adapting to climate change The Council will require all development to take measures to minimise the effects of, and adapt to, climate change and encourage all development to meet the highest feasible environmental standards that are financially viable during construction and occupation by:

- a. ensuring patterns of land use that minimise the need to travel by car and help support local energy networks;
- b. promoting the efficient use of land and buildings;
- c. minimising carbon emissions from the redevelopment, construction and occupation of buildings by implementing, in order, all of the elements of the following energy hierarchy:
  - 1. ensuring developments use less energy,
  - making use of energy from efficient sources, such as the King's Cross, Gower Street, Bloomsbury and proposed Euston Road decentralised energy networks;
  - 3. generating renewable energy on-site; and

d. ensuring buildings and spaces are designed to cope with, and minimise the effects of, climate change.

The Council will have regard to the cost of installing measures to tackle climate change as well as the cumulative future costs of delaying reductions in carbon dioxide emissions.





# CAMDEN DEVELOPMENT POLICIES (2010-2025)

# DP22 – Promoting sustainable design and construction

The Council will require development to incorporate sustainable design and construction measures. Schemes must:

- a. demonstrate how sustainable development principles, have been incorporated into the design and proposed implementation; and
- b.incorporate green or brown roofs and green walls wherever suitable. The Council will promote and measure sustainable design and construction by:
- c. expecting non-domestic developments of 500sqm of floorspace or above to achieve "very good" in BREEAM assessments and "excellent" from 2016 and encouraging zero carbon from 2019. The Council will require development to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures, such as:
- d.summer shading and planting;
- e.limiting run-off;
- f. reducing water consumption;
- g.reducing air pollution; and
- h.not locating vulnerable uses in basements in floodprone areas.





## CAMDEN PLANNING GUIDANCE: ENERGY EFFICIENCY AND ADAPTATION (2019).

## Making the most of daylight

- Maximise the amount daylight entering the building, minimising the need for artificial lighting.
- Carefully design windows to maximise the amount of daylight entering rooms to meet the needs of the intended use.
- Daylight is dependent on the amount of open, un-obscured sky available outside a window, the amount of sunshine and the amount of light reflected from surrounding surfaces.
- The size, angle and shape of openings together with room height depth and decoration determine the distribution of daylight.

## **Energy reduction**

The following energy reduction requirements are set out in the Camden Planning Guidance report:

- All development in Camden is expected to reduce carbon dioxide emissions through the application of the energy hierarchy.
- All new build major development to demonstrate compliance with London Plan targets for carbon dioxide emissions.
- Deep refurbishments (i.e. refurbishments assessed under Building Regulations Part L1A/L2A) should also meet the London Plan carbon reduction targets for new buildings.
- Developments of five or more dwellings and/or more than 500sqm of any gross internal floorspace to achieve 20% reduction in carbon dioxide emissions from on-site renewable energy generation

### **Preventing overheating**

Some developments may experience too much sunlight in the summer; therefore, applicants should achieve a balance between benefitting from solar gain and preventing overheating. Measures that contribute to preventing overheating include:

- use of low energy lighting;
- electrical services equipment and sourcing IT provision should be located in separate sealed areas;

- locate any spaces that need to be kept cool or that generate heat on the north side of developments;
- use smaller windows on the south elevation and larger windows on the north (a balance is needed between solar gain/daylighting);
- use shading measures, including balconies, louvers, internal or external blinds, shutters, trees and vegetation. Any shading needs to be carefully designed to take into account the angle of the sun and the optimum daylight and solar gain;
- include high performance glazing e.g. triple glazed windows, specially treated or tinted glass; and
- incorporating green and brown roofs and green walls which help to regulate temperature as well as providing surface water run-off, biodiversity and air quality benefits.

## Natural cooling

Natural cooling is a non-mechanical way of cooling a building. It uses an approach to design that controls the heat entering a building and encouraging dissipation.

Room layouts aiding circulation, shallow floor plans and high floor to ceiling heights all help the natural ventilation of buildings.

Night cooling is the operation of natural ventilation at night to lose excess heat and cool building fabric.

## Renewable energy technologies

All developments should consider the feasibility of onsite renewable energy generation. Renewable energy generation should only be considered once the earlier stages of the energy hierarchy have been followed and energy demand has been reduced as far as possible.

### Management of construction waste

Developers should reduce the construction waste arising from new development and re-use and recycle as much material as possible, following the waste hierarchy.

Similarly, in demolition developers should:

- prioritise the on-site re-use of demolition materials;
- recycle materials on site where feasible, then off site;



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- recovery (energy); and
- the least preferred option, disposal to landfill.

It is expected that 85% of construction and demolition waste should be diverted from landfill and comply with the Institute for Civil Engineers Demolition Protocol where substantial demolition is proposed. In general, the protocol is a 'demolition waste audit' - a process that describes the percentage of the materials present on a site which can be reused/recycled (either in the development site or one nearby).

### Sustainable Assessment tools

BREEAM Excellent is required for all non-residential development of 500sqm or more floorspace as well as for refurbishments of more than 5no. domestic units

Local Plan Policy CC2 expects non-residential developments of 500sqm or more of floorspace to achieve an Excellent BREEAM rating, achieving 60% of all available Energy and Water credits and 40% of available Materials credits. These sub-targets are included as achieving this weighting of credits is considered to result in the greatest environmental benefits.

Refurbishments/change of use schemes can undertake a BREEAM Refurbishment and Fit Out assessment, or BREEAM Domestic Refurbishment. **Camden Planning Guidance** 

# Energy efficiency and adaptation

March 2019





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## **PROPOSED SUSTAINABILITY MEASURES**

This part of the report presents the key elements of the proposal that underpin environmental sustainability, demonstrates how the development complies with sustainable development policies and incorporates guidance on sustainable design and construction.

## LAND AND SITE LAYOUT

## Land use

The land for this proposal is efficiently used as the scheme will be constructed on previously developed land. The site currently comprises 4 four storey terraced buildings. The ground floor of 551- 557 and the upper floors of three (553-557) are currently used as a Language school.

## **Reuse of Existing Buildings**

The site includes the remodelling of the existing building to provide residential apartments (C3) along with flexible commercial uses, alterations including partial demolition and extensions at the rear at lower ground, ground and first floor levels, extension to provide an additional storey at roof level, levelling of the lower ground floor level, remodelling and restoration of front façade.

## Land Form and Site Layout

The development is of a refurbishment nature and thus will have no additional effects on the surrounding context.

Consideration has been given to the layout and scale of the surrounding buildings. The height of the surrounding context is similar to the proposed building.

The scheme comprises a mixed-use development of commercial space and 15 residential units.

## **Daylight & Sunlight Impacts**

The scheme has also been found to have no adverse effects on access to daylight and sunlight of neighbouring properties (please refer to the Daylight and Sunlight Assessment submitted in support of this application).

## Micro-climate

A microclimate is the distinctive climate of a small-scale area and the variables within it, such as temperature, rainfall, wind or humidity may be subtly different to the conditions prevailing over the area as a while. The main characteristics of microclimates within London are temperatures and wind.

The proposed scheme is not of a scale that could potentially have any significant impact on wind conditions around the site or any adverse effects on pedestrian and residents' comfort.

# Impacts on Neighbours from Demolition and Construction

Construction impacts such as dust generation and increased traffic movements will be minimised through adoption of best practice construction measures, formalised through the production of a Construction and Environmental Management Plan to be delivered by the main contractor where appropriate.

## Land Contamination

In the event of any discovery of potentially contaminated soils or materials, this discovery will be quarantined and reported to the most senior member of site staff or the designated responsible person at the site for action. The location, type and quantity will be recorded and the Local Authority, a competent and appropriate third-party consultant will be notified immediately. An approval from the Local Authority will be sought prior to implementing any proposed mitigation action.



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## HEALTH AND WELLBEING

### **Inclusive Design**

The development aims to prioritise the future needs of occupants by ensuring that all dwellings and shared amenity spaces are designed to comply with Part M of the Building Regulations and includes an elevator for step free access.

## **Safety and Security**

The design team will comply with the principles of Secured by Design to provide safe and secure spaces to all residents and building users. External doors and windows will meet the minimum-security requirements set out by BREEAM.

### **Open Spaces/Amenity**

Private amenity spaces will be provided though terraced balconies to allow residents to gather, socialise and connect to the natural environment. This will also enhance the occupant's wellbeing as nature can significantly improve mood and happiness.

## Daylight/Sunlight

The proposed development ensures that occupants enjoy satisfactory levels of visual comfort and beneficial effects from daylight exposure, whilst also reducing energy consumption by minimising the use of artificial lighting as far as feasible.

## **Physical activity**

The presence of amenity providers (shops, pharmacies, public park) within walking distance to the development will encourage residents to walk rather than use personal vehicles. The provision of cycle storage spaces will also encourage the use of alternative means of transportation for longer distances trips.





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# ENERGY & CARBON DIOXIDE EMISSIONS

The Energy Strategy for the development has been designed in line with the London Plan's Policy 5.2 which states that every effort should be made to minimise carbon dioxide emissions in accordance with the following energy hierarchy:

- 1. Be lean: use less energy
- 2. Be clean: supply energy efficiently
- 3. Be green: use renewable energy
- 4. Be seen: monitoring

#### Be Lean

The building elements will be upgraded and altered to reduce energy demand through an enhanced building fabric (such as improved u-values and insulation), reducing reliance on artificial lighting, utilising low energy lighting and ensuring adequate levels of ventilation are maintained whilst reducing heat loss through the specification of MVHR.

#### Be Clean

As there are no existing or proposed heat networks highlighted as in close proximity to the site, no connection to a 'Clean' supply of energy is deemed feasible and consequently there are no emission savings at this stage.

#### Be Green

A range of renewable technologies were considered for generating on-site renewable energy. Air source heat pumps (ASHP) were considered suitable technologies for this development due to adequate flat roof space, easy installation process, and substantial  $CO_2$  savings.

Due to space requirements, ASHP were selected for the 4mo. lower ground units with the rest of the domestic units as well as the non-domestic space being serviced by high efficiency gas boilers. The incorporation of this technology into the development would contribute a reduction of 6.4% resulting in a total offset of 52.1% of regulated  $CO_2$  emissions over the baseline emissions.

Further details about the ASHP strategy, alternative renewable technology options and site-wide  $CO_2$  emission reductions can be found in the accompanying Energy Statement.



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## WATER

## Water Efficiency

The development at 551-557 Finchley Road aims to reduce water consumption to less than 105 litres per person per day, in line with the recommended target set out in the Housing SPG, through the use of water efficient fittings, and these are listed below.

Fitting	Fitting specification
WC	6/3 litres dual flush
Kitchen sink tap	6 litres per min
Wash basin tap	4 litres per min
Shower	8 litres per min
Bath	180 litres
Washing machine	8.17 litres/kg
Dishwasher	1.25 litres/place setting

Table 1: Recommended specification for sanitary fittings



Water Efficient Landscaping

Potable water consumption reduction from irrigation can be further maximised through a combination of water reuse and use of both native and drought resistant plant species, which will thrive with little to no irrigation and rely only on natural rainfall.

## **MATERIALS AND WASTE**

## **Responsible Sourcing**

100% of the timber used during construction will be sourced from accredited Forest Stewardship Council (FSC) or Programme for the Endorsement of forestry Certification (PEFC) source.

The main contractor will be required to prioritise products holding responsible sourcing certification (EMS/ISO14001) for the key process as per minimum, to ensure economic, social and environmentally responsible practices are implemented throughout construction products supply chain.

## Healthy Materials

To minimise potential sources of indoor air pollution, low VOC paints, finishes and other products will be prioritised as far as practically possible. Best practice design detailing and careful construction techniques will also be employed to reduce the risk of thermal bridging and condensation issues, limiting the potential for mould growth.

## Embodied Carbon

To further reduce carbon emissions over the lifecycle of the building, low embodied carbon materials will be used as far as practically possible, whilst also focusing on design practices to reduce waste production. Due to the refurbishment nature of the project there will be a notable embodied caron saving by not demolishing the existing structure and building a new structure.

## **Circular Economy**

Circular economy is based on three key principles: design out waste, keep products and materials in use, and regenerate natural systems. These principles will be applied during the design and construction of the proposed development by following the actions noted below:

- Design out the need for building components and materials;
- Use of reclaimed materials and remanufactured components over new;
- Product selection considering its entire lifecycle, such as products which can be remanufactured or reused; products with high recycled content; products designed for disassembly; and recyclable or compostable materials.



#### **Construction Waste**

A site waste management plan will be prepared for the development, and will include a pre-demolition audit to identify any key materials suited for recovery and reuse. The SWMP will outline the methodologies for estimating waste quantities and streams generated during the construction stage of the site works, and set out recommended measures required to be adopted by the Main Contractor to minimise these as far as practically possible.

### **Operational Waste**

An operational waste management strategy will be produced and implemented for the proposed development. This will demonstrate how the development has taken into account sustainable methods for waste and recycling management during its operation in order to meet requirements from the London Plan and London Borough of Camden policies and all applicable legal requirements.





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# NATURE CONSERVATION & BIODIVERSITY

The ecology on site will be improved via landscaped areas within the proposed private gardens. Native plant species will be introduced to these areas where possible. This will help to attract invertebrates, birds and other fauna to the area.

The proposed development aims to improve the open space of the site by introducing terraced balconies. Planting will include heat and drought resistant species, where feasible.

A green roof will be incorporated on the second floor next to unit 2A.



## **CLIMATE CHANGE ADAPTATION**

## Overheating

The potential risk of overheating will be mitigated by incorporating both passive and active design measures.

The space heating and hot water to both the domestic and non-domestic elements of the development will be provided by a combination of individual ASHP and high efficiency gas boilers. All heat sources and pipe work will be sufficiently insulated to avoid excess heat loss into internal space.

Efficient lighting will be used to further minimise internal heat gains and reduce energy expenditure.

Appropriately sized windows will reduce solar heat gains. Glazing with low transmittance will be used throughout the development to reduce solar gains and reduce the risk of overheating.

During peak summer periods the thermal mass of the buildings will absorb and store excess heat. The buildings will release heat in the cooler evenings to allow for cooler internal spaces, dampening the peak diurnal weather conditions.

#### Surface Water and Flooding

In line with BREEAM, all run-off from the roof for rainfall depths up to 5mm, have been managed on-site using source control methods (e.g. through infiltration, soakaways, etc.). This should include run-off from all existing and new parts of the roof.

The development site falls within an area with a Low risk. The site is within Flood Zone 1 (see the flood map included below).



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## SUSTAINABILITY STATEMENT





## **AIR, NOISE AND LIGHT**

## **Air Quality**

Air pollution risks from construction and demolition activities on site will be minimal in line with the SPG 'The control of dust and emissions from construction and demolition' under the following categories:

- demolition;
- earthworks;
- construction;
- track out; and,
- non-road mobile machinery (NRMM).

An air quality assessment has been carried out determine the impacts from dust and stationary plant emissions during the construction period and the potential impact from traffic flows on the local road network on both on-site and off-site receptors, during and after construction. Where necessary, mitigation measures are recommended to reduce any air quality impact.

During the operational phase of the development, combustion of fossil fuels and associated combustion emissions for heating will be reduced via improved levels of insulation and air tightness for the buildings' fabric, and the specification of a combination of individual ASHP and high efficiency gas boilers (for further details please refer to the accompanying *Energy Statement*).

Ultra-low NOx boilers (maximum NO<sub>x</sub> emissions of under 40 mg/kWh dry NO<sub>x</sub> at 0% excess O<sub>2</sub>) will be specified to further reduce impacts on air quality from the combustion of fuels on site.

Overall, the development will meet 'air quality neutral' benchmarks set out in the London Plan. For further details please refer to the Air Quality Assessment submitted in support of the application.

### Noise

The development will incorporate design and building fabric measures to mitigate potential noise levels from the proposed development, and ensure the impact of any external sources on internal ambient noise levels are within acceptable limits.

## LIGHT POLLUTION

The lighting design of the proposed development will follow the recommendations of the Institution of Lighting Engineers' Guidance Notes for the Reduction of Obtrusive Light (2005), to minimise light pollution.

## Water Pollution

Water pollution to surrounding watercourses has been minimised as there are no polluting activities proposed on site. In addition, contractors will adopt best practice policies to mitigate water pollution from construction activities on site.

The development will discharge domestic sewage via a connection to the public foul sewer or combined sewer network where it is reasonable to do so.





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## TRANSPORT

## Alternative means of transportation

In order to underpin the reduction of emissions from transport, the development has been designed to encourage cycling; cycle parking will be provided to all flats, maisonettes and for visitors by installing stands convenient to the building entrance. The proposed development will be car free.

## **Public Transport Accessibility**

The PTAL rating – which ranges from 0 (very poor) and 6b (excellent) - on the site is 4 and an associated Accessibility Index of 17.11.

## **Proximity to Amenities**

There are restaurants, cash points and food outlets located in close proximity to the building site.





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## SUSTAINABILITY STANDARDS

Within the London Borough of Camden, the BREEAM standard of Excellent is required for all residential with 5 or more units. The following Pre-Assessment demonstrates compliance with the Local Authority's policies in relation to BREEAM assessments.

## BREEAM DOMESTIC REFURBISHMENT 2014

BREEAM Domestic Refurbishment is a performancebased assessment method and certification scheme for domestic buildings undergoing refurbishment. The primary aim of BREEAM Domestic Refurbishment is to improve the environmental performance of existing dwellings in a robust and cost-effective manner. This is achieved through integration and use of the scheme by clients and their project teams at key stages in the refurbishment process.

A BREEAM Domestic Refurbishment Pre-Assessment was carried out for the residential refurbishment element of the development.

The pre-assessment tool uses established benchmarks to evaluate a building's specification, design, construction and operation, over a broad range of categories and criteria:

- Management processes
- Health and wellbeing
- Energy use
- Transport
- Water use
- Materials
- Waste
- Land use and ecology
- Pollution
- Innovation

The outcome of the pre-assessment is expressed as a single certified BREEAM rating, ranging from Pass (30%) to Outstanding (85%).

Table 2: BREEAM Certification Thresholds

BREEAM 201 Rating	Percentage of Credits Required
Outstanding	85%
Excellent	70%
Very Good	55%
Good	45%
Pass	30%





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## **BREEAM PRE-ASSESSMENT RESULTS**

A BREEAM pre-assessment has been undertaken at pre-application stage which has shown that a score of 72.3% is feasible.

The following table summarises the number of credits targeted to achieve the rating of 'Excellent'; a detailed analysis of credits targeted can be found in Appendix A - BREEAM Pre-assessment.

The results for the pre-assessment are summarised in the table below, and include a breakdown of the currently targeted score for each issue and category.

Score Assessment **Total Credits BREEAM** Category Available Sub-total Weighting Score (%) Management 11.0 10.0 0.12 10.9% Health & Wellbeing 12.0 8.0 0.17 11.3% 29.0 21.5 0.43 31.9% Energy Water 5.0 3.0 0.11 6.6% Materials 48.0 31.0 0.08 5.2% Waste 5.0 2.0 0.03 1.2% Pollution 7.0 0.06 5.3% 8.0 / 0.0 / Innovation 10.0 **Total Points Scored: 72.3% BREEAM Excellent** 

#### Table 3: BREEAM Pre-Assessment Breakdown



## CONCLUSION

The proposals aim to comply, where feasible, with the sustainable development policies of Camden's Local Plan and the recommendations of Camden's Development Policies and Camden Planning Guidance.

A range of applicable sustainable design and construction measures have been incorporated which reflect the client and design team's aspirations in creating a new sustainable Residential-led Development with a frontage in keeping with the existing context of 551-557 Finchley Road, designed to a high environmental standard.

Key features that impact the sustainability of the proposed project include:

- The reuse of previously developed underused land;
- Thoughtful design to reduce energy demand through enhanced building fabric;
- Efficient design of the proposed massing, openings and internal layouts so that habitable spaces benefit from abundant daylight and sunlight levels, whilst impacts to neighbouring buildings are kept to a minimum;
- Reduced demand for the use of new materials as elements of existing structure will be reused;
- Training and support for occupants during handover to enable the building to be used efficiently;
- High efficacy lighting and advanced controls
- Effective pollution management and control: The development is not expected to have any significant adverse effects to air, noise, land or watercourses.

Overall, the proposed development at 551-557 Finchley Road meets the sustainability targets set out by London Borough of Camden and the Greater London Authority (GLA). The refurbished units of the scheme could achieve a BREEAM score of 72.3%, exceeding the BREEAM 'Excellent' target of 70%.

The number of credits obtained in the BREEAM preassessment and the sustainability measures incorporated reflect the client and design team's aspirations in integrating sustainability measures and demonstrates that the project is designed to exceed the planning policy sustainability requirements.



## **APPENDIX A – BREEAM PRE-ASSESSMENT**

XC<sub>@2</sub>

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BREEAM UK Domestic Refurbishmer	nt 2014 Pre-Assessr	nent Estimator v0.1				BRE	© BRE Global Ltd 2	
his assessment and indicative BREEAM ra ommunicated as such. The score presente	ting is not a formal cer ed is indicative of a dw	tified BREEAM assessment of elling's potential performan	or rating and must no ce and is based on a	Pass	Min Good Ver	imum Standards y Good Excel	lent Outstand	
mplified pre-formal BREEAM assessment	Building name	tments given at an early sta 551-557 Finchl	ge in the design proc <b>ey Road</b>	Ene 02 Wat 01	4	4 4	X	
Indica Indi	tive building score (%) cative BREEAM rating	72.33% Excellen	t	Hea 05 Hea 06	4	4		
Management Health & Wellbeing	Energy	Water Materials W	aste Pollution	Pol 03 Mat 02	3	÷ ;	. 3	
INNOVATION		Section Weighting: 10%			ndicative Sectio	n Score: 0.00%		
MANAGEMENT		Section Weighting: 12%			ndicative Sectio	n Score: 0.00%		
Aan 01 Home Users Guide								
No. of BREEAM credits available	3	-		Available contribution to over	rall score	3.27%		
No. of BREEAM innovation credits available	0			Minimum Standards ap	oplicable:	No		
ssessment Criteria						Indicati	ve Credits Achie	
There a Home Users Guide be provided to	all dwellings, covering	g all issues set out in the 'Us	ers Guide Contents li	st', three credits may be awarded			3	
No. of BREEAM credits available	2	-		Available contribution to over	all score:	2.18%	_	
No. of BREEAM innovation credits available	1			Minimum Standards ap	oplicable:	No		
ssessment Criteria		<b>I</b>				Indicati	ve Credits Achie	
Large Scale - project with more	than 5 units	, credits are awarded deper	iding the score achie	Two Credite			Ζ	
Considerate Construct	tors Scheme	Score of 25-34 with a section	core of 5 in each	Score of 35-39 with a score of 7 in e	each section			
Alternative Complia	nt Scheme	Complian	ce	Beyond Compliance				
Small Scale - project with 5 units	s or fewer			· · ·				
Considerate Construe	tors Cohomo	One Crea Score of 25-34 with a se	lit core of 5 in each	Two Credits	anch costion			
Alternative Complia	nt Scheme	section	CP	Beyond Compliance	Score of 35-39 with a score of 7 in each section			
Checklist A		50% of the ontio	nal items	80% of the optional item	15			
Exemplary Credit						Indi	ative Innovatio	
Considerate Construct	tors Scheme	Score of 40 or more with a section	a score of 7 in each				edits Achieved 0	
Alternative Complia	nt Scheme	Exemplary Level C	Compliance					
Checklist A-	3*	All Items (Optional 8	& Mandatory)	* Small Scale Project Only				
Aan 03 Construction Site Impacts	1			Available contribution to over	rall score	1.09%		
No. of BREEAM innovation credits						10070		
available	0			Minimum Standards a	pplicable	No		
ssessment Criteria /here evidence demonstrate that site imp	oacts will be monitored	l, as detailed below:				Indicati	ve Credits Achie 1	
large Scale		Where there is evi	idence to demonstra	One Credit	4 are completer	4		
Small Scale	- 	Where there is evi	idence to demonstra	te that 2 or more of the sections in Checklist A-	5 are completed			
Large	e Scale - Checklist A-4	Sectio	ons of Checklist	Small Scale - Checklist A-5				
Monitor, report and set targets f	activities	energy use arising from site	Set objectives for	reducing CO2 production from energy use arisi	ing from site act	ivities		
Monitor, report and set targets	for water consumption	arising from site activities	Set of	jectives for reducing water use arising from site	e activities			
A main contractor w	ith an environmental r	naterials policy		Main contractor environmental materials stater	ment			
A main contractor that oper	ates an Environmenta	Management System	80% (	of site timber is reclaimed. re-used or responsibl	ly sourced			
80% of site timber is re Same definition of small and lar	claimed, re-used or res	sponsibly sourced			,			
Vian 04 Security No. of BREEAM credits available	2			Available contribution to over	all score:	2.18%		
No. of BREEAM innovation credits	0			Minimum Standards ap	oplicable:	No		
ssessment Criteria						Indicati	ve Credits Achie	
/here the following requirements will be	met:						1	
Secure windows a	nd doors	External door	s and accessible win	dows meet minimum standards and appropriate	ely certified			
		Prin	ciples and guidance	of Secured by Design Section 2 are complied wit	th			
Two Credit Secured by de	<b>s</b> sign	A suitably qualified secur	ity consultant is cons	ulted at the design stage and their recommendation	ations are incor	porated		
				into the returbisilitetit		1		

Man 05 Protection and Enhancement of	f Ecological Features				
No. of BREEAM credits available	1	Available contribution to overall score:	1.0	9%	
No. of BREEAM innovation credits available	1	Minimum Standards applicable:	N	0	
Assessment Criteria Where the following requirements will be	met:			Indicative Cre	dits Achieved
	inct.	Site survey carried out to determine presence of ecological features			
One Credi Protecting Ecologica	i <b>t</b> al Features	atures Statutory Nature Conservation Organisation notified of protected species			
		Features of ecological value protected during refurbishment works			
Exemplary Cr Ecological enhan	redit Iccement	A suitably qualified ecologist recommends features to enhance ecology of the site adopts all general ecological recommendations adopts 30% of additional recommendations		Indicative I Credits A C	nnovation chieved
Man 06 Project Management	2	Available contribution to overall score	21	8%	
No. of BREEAM innovation credits available	2	Minimum Standards applicable	N	0	
Assessment Criteria Where the following requirements will be	met:		Î	Indicative Cre	dits Achieved
		Where all of the project team are involved in the project decision making			
		Small Scale - the project manager assigns individual and shared responsibilities amongst the project team trades on site	n including all		
One Credi	it sponsibilities	Large Scale - the project manager assigns individual and shared responsibilities across the following key refurbishment stages: i. Planning and Building control notification ii. Design iii. Refurbishment iv. Commissioning and handover v. Occupation	r design and		
Small Scale projects: five units of	or fewer and less than £	100k Large Scale projects: more than five units and more than £100k			
		Handover meeting arranged			
One Credi Handover and Af	it ftercare	2 or more of the following committed to: - A site inspection within 3 months of occupation - Conduct post occupancy interviews with building occupants or a survey via phone or posted informat months of occupation - Longer term after care e.g. a helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupa	tion within 3	Indicative I	nnovation
Exemplary Credits				Credits A	chieved
One Exemplary	Credit	Where A BREEAM Accredited Professional has been appointed to oversee key stages within the pr OR	roject.		
Early Design II	nput	Where a BREEAM Domestic Refurbishment Assessor has been appointed at an early stage of the project, production of a refurbishment specification	, prior to the		
One Exemplary	Credit	- Where Thermographic surveying and Airtightness testing have been carried out at both pre and post ref stages	furbishment		
Thermographic Surveying and	l Airtightness Testing	Where an improved air tightness target has been set at design stage and testing demonstrates that this achieved post refurbishment	s has been		

HEALTH & WELLBEING		Section Weighting: 17% Indicative Sec	ction Score 0.00%	
Hea 01 Daylighting				
No. of BREEAM credits available	2	Available contribution to overall score	2.83%	
No. of BREEAM innovation credits		Minimum Standards amiliable	No	
available	U	Winnihum Standards applicable	NU	
Assessment Criteria			Indicative Cre	edits Achieve
Where the refurbishment results	in a neutral impact or	a daylighting or where minimum daylighting standards are met, up to two credits may be awarded as		1
follows:				
For Existing Dwellings and Chang	ge of Use Projects			
First Credit		The refurbishment results in a neutral impact on the dwellings daylighting levels in the kitchen, living rear	m dining	
Maintaining Good D	• avlighting	room and study	n, uning	
interine cood o				
Where the property is being ext	ended			
		New spaces achieve minimum daylighting levels		
First Credit	t	The extension does not significantly reduce daylighting levels in the kitchen, living room, dining room or	study of	
Maintaining Good D	aylighting	neighbouring properties		
For All Bronarties				
Second Cred	lit	The dwalling achieves minimum davlighting levels in the kitchen living room, diving room, and stur	dv	
Minimum Daylig	ghting	The dwelling achieves minimum daylighting levels in the kitchen, living room, dhiling room and stud	Jy	
		l		
Hea 02 Sound Insulation				
No. of BREEAM credits available	4	Available contribution to overall score	5.67%	
			0.0770	1
No. of BREEAM innovation credits				
available	0	Minimum Standards applicable	No	
Assessment Criteria			Indicative Cre	edits Achieved
To ensure the provision of accept	table sound insulation	standards and so minimise the likelihood of noise complaints.		3
Properties where sound testing	has been carried out:			
		Four credits awarded according to the improvement over building regulations. See table in additional infor	mation in	
Up to Four Cre	edits	Technical Manual		
Properties where sound testing	is not reasible and not	required by the appointed Building Control body		
Two Crodit	•	Where existing separating walls and floors are designed to meet the requirements of Building Regulatio	ns with	
Two create	3	compliant construction details		
		Where a Suitably Qualified Acoustician (SQA) provides recommendations for the specification of all existing	separating	
		walls and floors		
Up to Four Cre	dits	SQA confirms in their professional opinion that they have the potential to meet or exceed the sound insula	tion credit	
		requirements		
		Where these recommendations are implemented		
		Cos toble in additional information in Technical Manual		
Historic Buildings				
		Where the dwelling is a Historic Building and sound testing results demonstrate existing separating walls	and floor	
		meet the Historic Building credit requirements		
Up to Four Cre	dits	See table in additional information in Technical Manual		
		where sound testing is not feasible and not required by the appointed Building Control body meeting criter	ria 2 and 3	
		Properties where sound testing has been carried out, credits awarded according to the improvement over	uniding	
		Where the dwelling is a property with separating wells or floors only between non-behit-bloors on the between the behit-bloors on the behit-bloors	sting not	
Detached Properties		where the owening is a propertywith separating wails or moors only between non habitable rooms OK Te	sting not	
Four Credit	c	By Default		
Properties with separating walls	or floors only betwee	n non habitable rooms OR Testing not required by building control body		
Four Credit	s	By Default		
		Sy Scion		

Hea 03 Volatile Organic Compounds					
No. of BREEAM credits available	1		2%		
No. of BREEAM innovation credits available	0		Minimum Standards applicable	N	0
Assessment Criteria					Indicative Credits Achieved
Where the refurbishment avoids	s the use of VOCs with r	new products meeting the following requirement	nts:		0
		Where all decorative paints and varnishes us	ed in the refurbishment have met the requirement listed in the Technical Manual	n table 5.4 in	
One Credit Avoiding the use of VOCs		Where at least five of the eight remaining pro emission levels for Volatile Organic Compoun			
		Where five or less products are specified with	in the refurbishment, all must meet the requirements in or	rder to achieve	
Hea 04 Inclusive Design					
No. of BREEAM credits available	2		Available contribution to overall score	2.8	3%
No. of BREEAM innovation credits available	1		Minimum Standards applicable	N	o
Assessment Criteria				·	Indicative Credits Achieved
Where an access statement has been carri	ied out using Checklist A	A-8 of the Technical Manual to optimise the acc	essibility of the home as follows:		1
		Check	list A-8 of the Technical Manual		
0no.Cardi	+	Section 1	Section 2		
Minimum Acces	sibility	Completed with Evidence			
Two Credit	ts sibility	Completed with Evidence	Completed with Evidence		
Exemplary Performance	sibility				Indicative Innovation
One Credit	Where an access expe access statement tem	rt suitably qualified member of the design tean plate with evidence provided of the measures i	n has completed sections 1, 2 and 3 of Checklist A-8, mplemented in the refurbishment		Credits Achieved 0
Hea 05 Ventilation		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
No. of BREEAM credits available	2		Available contribution to overall score	2.8	3%
No. of BREEAM innovation credits available	0		Minimum Standards applicable	Ye	25
Assessment Criteria					Indicative Credits Achieved
Where the dwelling meets the fo	ollowing ventilation req	uirements:			2
		A minimum level of background ventilation i habitable rooms, kitchens, utility rooms an			
One Credi Minimum Ventilation F	<b>t</b> Requirement <b>s</b>	A minimum level of extract ventilation is pro with section 5, Buildin			
		A minimum level of purge ventilation is pro Building Regul	wided in all habitable rooms and wet rooms, compliant win lations Approved Document Part F, 2010.	th section 7,	
		It is an historic building and meets	historic building requirements in CN4 of the technical mar	iual	
Two Credi	ts	Ventilation is provided for the dwelling that r	neets the requirements of Section 5 of Building Regulation	ıs Part F in full	
Advanced Requir	rement <b>s</b>	Where the building is a historic building and m	neets the requirements for Historic Buildings in complianc technical manual	e note 4 of the	
No. of BREEAM credits available	1		Available contribution to overall score	1.4	2%
NO. OF BREEAM INNOVATION CREdits available	0		Minimum Standards applicable	Ye	25
Assessment Criteria Where a fire and carbon monovi	ide (CO) detection and a	alarm system is specified as follows:			Indicative Credits Achieved
		Where a compliant fire detection and fire alar	m system is provided	/	
One Credi	t ) Detection and Alarm	Carbon Monoxide detector installed if dwellin	g is supplied with mains gas or other fossil fuel		
Systems		Mains supplied fire detection and alarm system	m if project involves re-wiring*		
* see CN9 in Hea 06 for the defi	nition of re-wiring	Battery operated fire detection and alarm syst	tem if no re-wiring* is to take place		

ENERGY		Section Weighting: 43%				Indicative S	ection Score 0	.00%	
Ene 01 Improvement in Energy Efficient	cy Rating								
No. of BREEAM credits available	6				Available contributi	on to overall score	8.90	%	
No. of RREEAM innovation gradits									
NO. OF BREEAW INNOVATION CRUITS	0				Minimum Sta	andards applicable	No		
avaliable									
Assessment Criteria							1	ndicative Credits /	Achieved
Where the following targets are met for th	e improvement in Ener	gy Efficiency Rating achieve	d as a result of refur	bishment:				4	
	Improve	ment in EER	Cre	dits					
		≥5	0	.5					
		≥9		1					
		2 13	1						
		21/		2					
		> 26	2	3					
		> 31	3	5					
		≥ 36		4					
		≥ 42	4	.5					
		≥ 48		5					
		≥ 54	5	.5					
		≥ 60		6					
Ene 02 Energy Efficiency Rating Post Re	furbishment								
No. of BREEAM credits available	4				Available contributi	on to overall score	5.93	%	
No. of BREEAM innovation credits	2				Minimum Sta	andards applicable	Yes		
available									
Assessment Criteria							li II	ndicative Credits	Ach <u>ieved</u>
Where the following Energy Efficiency Rati	ing benchmarks will be	met as a result of refurbish	ment:					2.5	
	EER post i	refurbishment	Credits		Minimu	ım requirements			
		≥50	0.5		'Pass'	level EER of 50			
		≥55	1		'Good	level EER of 58			
		≥60	1.5						
		≥65	2		'Very Go	od level' EER of 65			
		≥70	2.5		'Exceller	nt' level EER of 70			
		≥75	3						
		≥80	3.5		'Outstand	ling' level EER of 81			
		≥85	4					Indiantical Invest	
	Eve	malan	Cradita					Indicative Innov	vation
	EXE		1						eveu
		290	2				L	0	
		2100	2						
Comments									
Comments									
Comments	I								
Comments									
Ene 03 Primary energy demand No. of BREEAM credits available	7				Available contributi	on to overall score	10.38	%	
Ene 03 Primary energy demand No. of BREEAM credits available	7				Available contributi	on to overall score	10.38	%	
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available	7				Available contributi Minimum Sta	on to overall score andards applicable	10.38 No	%	
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available	7				Available contributi Minimum Sta	on to overall score andards applicable	10.38 No	%	
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria	0				Available contributi Minimum Sta	on to overall score	<u>10.38</u> No	%	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be	met as a result of refurbish	ment:		Available contributi Minimum Sta	on to overall score andards applicable	10.38 No	% ndicative Credits / 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dem	met as a result of refurbish and Post Refurbishment	ment: Credits		Available contributi Minimum Sta	on to overall score andards applicable	10.38 No	% ndicative Credits A 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dem	met as a result of refurbish and Post Refurbishment 5 400	ment: Credits 0.5		Available contributi Minimum Sta	on to overall score andards applicable	10.38 No ➡	% ndicative Credits <i>J</i> 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dema 2	met as a result of refurbish and Post Refurbishment 4 00 5 370	ment: Credits 0.5 1		Available contributi Minimum St	on to overall score	10.38 No ➡	% Adicative Credits A	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dem 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 2 2 3 2 3 2 3 2 3	met as a result of refurbish and Post Refurbishment \$ 400 \$ 370 \$ 340	ment: Credits 0.5 1 1.5		Available contributi Minimum Sta	on to overall score andards applicable	10.38 No ➡	% ndicative Credits A 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dem	met as a result of refurbish and Post Refurbishment 400 5370 5340 5320	ment: 0.5 1 1.5 2		Available contributi Minimum Sta	on to overall score andards applicable	10.38 No	% ndicative Credits A 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Primary Energy Dem 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 320 320 320 290	ment: Credits 0.5 1 1.5 2 2.5 2		Available contributi Minimum St	on to overall score	10.38 No ➡	% hdicative Credits A 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 400 5 370 5 340 5 320 5 300 5 280 5 260	ment: Credits 0.5 1 1.5 2 2.5 3 2.5		Available contributi Minimum St	on to overall score	<u>10.38</u> No ⇒ [	% hdicative Credits A 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment \$ 400 \$ 370 \$ 340 \$ 320 \$ 320 \$ 280 \$ 260 \$ 260 \$ 260	ment: 0.5 1 1.5 2 2.5 3 3.5 4		Available contributi Minimum Sta	on to overall score andards applicable	10.38 No →	ndicative Credits A	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 400 5370 5340 5320 520 5260 5260 5240 5240 5240 5240	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5		Available contributi Minimum St	on to overall score	10.38 No	% ndicative Credits / 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Primary Energy Dem	met as a result of refurbish and Post Refurbishment 400 3 370 3 340 3 200 2 280 2 260 5 240 5 220 5 220 5 200	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5		Available contributi Minimum St.	on to overall score	10.38 No	1% ndicative Credits / 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 400 370 340 320 320 220 220 220 220 220 220 220 22	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5		Available contributi Minimum St	on to overall score	10.38 No	ndicative Credits 4	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Ind benchmarks will be Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment \$400 \$370 \$340 \$320 \$320 \$280 \$280 \$280 \$280 \$240 \$220 \$240 \$220 \$240 \$220 \$160	ment: Credits 0,5 1 1.5 2 2,5 3 3.5 4 4,5 5 5,5 6		Available contributi Minimum Sta	on to overall score	10.38 No [	ndicative Credits /	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Primary Energy Dem	met as a result of refurbish and Post Refurbishment 400 370 320 320 280 240 240 240 240 220 220 180 5160 1140	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6 6.5		Available contributi Minimum St	on to overall score	10.38 No ➡	% ndicative Credits / 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema	7 0 Primary Energy Dem 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 340 340 320 220 220 220 220 520 5180 5160 5140 5120	ment: Credits 0.5 1 1.5 2.5 3 3.5 4 4.5 5.5 6 6.5 7		Available contributi Minimum St.	on to overall score _	<u>10.38</u> No	1% hdicative Credits / 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Ene 04 Renewable Technologies	7 0 Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 400 370 340 320 320 220 220 220 220 220 220 220 180 510 510 5120	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6 6.5 7		Available contributi Minimum St	on to overall score	<u>10.3</u> € No	% hdicative Credits /	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Under the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available	7 0 Ind benchmarks will be Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 5 400 3 370 3 340 5 320 5 280 5 280 5 280 5 280 5 260 5 240 5 240 5 220 5 160 5 140 5 140 5 120	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7		Available contributi Minimum Sta	on to overall score andards applicable on to overall score	10.38 No ➡	% Indicative Credits /	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available	7 0 Primary Energy Dem 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 320 280 280 240 220 220 180 5 180 5 180 5 140 5 120	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7		Available contributi Minimum St	on to overall score	<u>10.38</u> No ➡	%	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM credits available	7 0 Primary Energy Dem 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 340 340 320 280 220 220 220 220 220 5200 5180 5180 5140 5120	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7		Available contributi Minimum St	on to overall score andards applicable	<u>10.38</u> No ⇒ [	%       hdicative Credits /       5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Under the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM innovation credits available	7 0 Ind benchmarks will be Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 400 370 340 320 230 220 220 220 220 220 180 160 140 122	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6 6.5 7		Available contributi Minimum Sta Available contributi Minimum Sta	on to overall score andards applicable	10.38 No → [ 2.97 No	%	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria	7 0 Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 5 400 5 370 5 340 5 320 5 280 5 280 5 280 5 280 5 280 5 260 5 260 5 260 5 20 5 20 5 20 5 20 5 20 5 20 5 20 5 2	ment: 0,5 1 1.5 2 2,5 3 3,5 4 4,5 5,5 6 6,5 7		Available contributi Minimum Sta Available contributi Minimum Sta	on to overall score andards applicable on to overall score andards applicable	10.38 No →	Micative Credits / 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria	7 0 Ind benchmarks will be Primary Energy Dem 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 320 280 280 220 220 180 5 180 5 140 5 120	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7 ru domand increase		Available contributi Minimum St. Available contributi Minimum St.	on to overall score andards applicable	10.38 No →	% ndicative Credits /	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM credits available Assessment Criteria Where the dwelling will meet the following	7 0 Primarks will be 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 340 280 280 220 220 220 200 180 180 110 120	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7 7 rgy demand targets a	as a result of ref	Available contributi Minimum St Available contributi Minimum St	on to overall score andards applicable on to overall score andards applicable	<u>10.38</u> No ⇒ [ 2.97 No	Micative Credits / 5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Vere the following Primary Energy Dema No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Ind benchmarks will be Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 400 370 340 230 220 220 220 220 220 180 140 140 120 190 190 190 190 190 190 190 190 190 19	ment: 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6 6.5 7 rgy demand targets	as a result of ref	Available contributi Minimum St Available contributi Minimum St furbishment Renewables	on to overall score andards applicable on to overall score andards applicable	10.38 No ⇒ [ 2.97 No	Micative Credits /	Achieved
Ene 03 Primary energy demand No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Primary Energy Dem 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 5 340 5 20 2 260 2 240 5 20 2 20 1 180 5 160 5 140 5 120 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6 6 5 7 7 rgy demand targets : P(1 Credit	as a result of ref	Available contributi Minimum St Available contributi Minimum St furbishment Renewables 2 Credits	on to overall score andards applicable on to overall score andards applicable	10.38 No ⇒ [ 2.97 No ⇒ [	% hdicative Credits / 5 hdicative Credits / 0	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Mo. of BREEAM credits available No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Ind benchmarks will be Primary Energy Dem 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 320 280 220 220 220 5180 5160 5140 5140 5120 enewables and primary ene Primary Energy Demand	ment: 0.5 1 1.5 2.5 3 3.5 4 4.5 5.5 6 6.5 7 rgy demand targets of Prove 1 Credit ≥10%	as a result of rel	Available contributi Minimum St Available contributi Minimum St furbishment Renewables 2 Credits >20%	on to overall score andards applicable	10.38 No ⇒ [ 2.97 No ⇒ [	%       hdicative Credits /       %       hdicative Credits /       0	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Primarks will be Primarks will be 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 5 370 5 340 5 300 5 280 5 260 5 240 5 240 5 240 5 200 5 180 5 160 5 140 5 120 Primary Energy Demand ≤ 250 kWh/m²/year	ment: 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7 7 rgy demand targets P 1 Credit ≥10% ≥10%	as a result of ref	Available contributi Minimum Sta Available contributi Minimum Sta furbishment Renewables 2 Credits 2 20% ≥20%	on to overall score andards applicable	<u>10.38</u> No ⇒ [ 2.97 No ⇒ [	% hdicative Credits / hdicative Credits / 0	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Where the following Primary Energy Dema No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Primary Energy Dem 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	met as a result of refurbish and Post Refurbishment 400 370 340 220 220 220 220 180 140 140 122 120 enewables and primary ene Primary Energy Demand ≤ 250 kWh/m <sup>2</sup> /year	ment: 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7 rgy demand targets of the second	as a result of ref	Available contributi Minimum St Available contributi Minimum St furbishment Renewables 2 Credits 2 20% 20%	on to overall score andards applicable	10.38 No ⇒ [ 2.97 No —→ [	Micative Credits /	Achieved
Ene 03 Primary energy demand No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Primary Energy Dem 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 5 340 5 20 2 260 2 240 5 200 5 200 5 180 5 160 5 140 5 120 Primary Energy Demand ≤ 250 kWh/m²/year	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4 4.5 5.5 6 6.5 7 7 rgy demand targets : rgy demand targets : Pr 1 Credit ≥10% ≥10% ≥10%	as a result of ref	Available contributi Minimum St Available contributi Minimum St furbishment Renewables 2 Credits 220% 220% 220%	on to overall score andards applicable	10.38 No → [ 2.97 No → [	% hdicative Credits / hdicative Credits / 0	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Primary Energy Dem 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 340 280 220 220 220 220 220 180 160 110 120 enewables and primary ene Primary Energy Demand ≤ 250 kWh/m <sup>2</sup> /year	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7 7 rgy demand targets : P P 1 Credit ≥10% ≥10% ≥10% ≥10%	as a result of ref	Available contributi Minimum St Available contributi Minimum St furbishment Renewables 2 Credits 20% 20% 20% 20%	on to overall score andards applicable	10.38 No ⇒ [ 2.97 No ⇒ [	%       ndicative Credits /       5	Achieved
Ene 03 Primary energy demand No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the following Primary Energy Dema Ene 04 Renewable Technologies No. of BREEAM credits available No. of BREEAM credits available No. of BREEAM innovation credits available Assessment Criteria Where the dwelling will meet the following	7 0 Primarks will be Primarks will be 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	met as a result of refurbish and Post Refurbishment 400 370 340 280 200 220 200 180 160 5 120 Primary Energy Demand ≤ 250 kWh/m²/year ≤ 220 kWh/m²/year	ment: Credits 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5.5 6 6.5 7 7 rgy demand targets - rgy demand targets - P 1 Credit ≥10% ≥10% ≥10% ≥10%	as a result of ref	Available contributi Minimum St Available contributi Minimum St furbishment Renewables 2 Credits 2 20% 2 20% 2 20% 2 20% 2 20%	on to overall score andards applicable	<u>10.38</u> No ⇒ [ 2.97 No ⇒ [	% hdicative Credits / hdicative Credits / 0	Achieved

Ene 05 Energy Labelled White Goods								
No. of BREEAM credits available	2				Avail	lable contribution to overall score	2.9	7%
No. of BREEAM innovation credits available	0	Minimum Standards applicable						0
Assessment Criteria								Indicative Credits Achieved
Where Energy Efficiency White goods are First Credit	to be provided as follov	/S:				nnlianco nat to ha neovidad		2
Appliance		Appliance pro	ovided		A	ppliance not to be provided		
Fridges, Freezers and Fi	ridge-Freezers	A+ Rating under EU Er Labelling Scl	A+ Rating under EU Energy Efficiency Labelling Scheme EU Energy Efficiency Labelling Scheme Information Leafle all dwellings					
Forond Credit	1							
Appliance		Appliance pro	ovided		A	ppliance not to be provided		
Washing Machines and	Dishwashors	Washing Machine A++	under EU Energy			Second credit not achieved		
washing wachines and	DISTIWASTIETS	Efficiency Labellir	ng Scheme					
Washer-Dryers and Tu	imble Dryers	Appliances specified with Energy Efficiency Lab	A Rating under EU elling Scheme	EU Energy	Efficiency L	abelling Scheme Information Leafle all dwellings	et provided to	
Ene 06 Drying Space							-	
No. of BREEAM credits available	1				Avail	lable contribution to overall score	1.4	8%
No. of BREEAM innovation credits available	0					Minimum Standards applicable	N	0
Assessment Criteria								Indicative Credits Achieved
Where adequate, secure internal or extern	nal space with posts and	footings or fixings is provi	ded with the followi	ng:			$\Rightarrow$	1
		1 Credit						
		Number of bedrooms	Drying li	ne required				
		1-2		4m+ 5m+				
Ene 07 Lighting		5.		51111				
No. of BREEAM credits available	2				Avail	lable contribution to overall score	2.9	7%
No. of BREEAM innovation credits available	0					Minimum Standards applicable	N	o
Assessment Criteria								Indicative Credits Achieved
Where energy efficient internal and extern	nal lighting is provided a	is follows:						2
	External Lighting - 1							
	Credit							
	Energy Efficient Space	Lighting of more than 45 lu	imens per circuit wa	tt and Energ	y Efficient S	Security Lighting OR		
	Where Energy Efficien	t Space Lighting is provided	ONLY					
	Internal Lighting - 1							
	Credit Maximum avorago wa	ttage across the total floor	area of the dwelling	of 9 watts /r	n7			
Ene 08 Display Energy Devices	Waximam average wa		area of the awening	01 5 Watts/1	112			
No. of BREEAM credits available	2				Avail	able contribution to overall score	2.9	7%
NO. OF BREEAW INNOVATION Credits available	1					Minimum Standards applicable	N	0
			0					
Assessment Criteria								Indicative Credits Achieved
where consumption data is displayed to o	ccupants by a complian	t energy display device		Drin	narv Heatir			2
	Electricity usa	ge data displayed	Electricity		, neural	Other		
	Electricity usa	ge data displayed	2 credits awar	ded		1 credit awarded	]	
	Primary Heating Fu	el usage data displayed	N/A			1 credit awarded	-	
	Electricity & Prima	ary Heating Fuel usage	N/A			2 credits awarded	J	
			v	Where the fir	st two cred	dits are achieved	]	Indicative Innovation
	On	e credit	Where any cor	mpliant Ener	gy Display I	Device is capable of recording		Credits Achieved
	Recording co	onsumption data		co	nsumption	data		0
Ene 09 Cycle Storage								
No. of BREEAM credits available	2				Avail	able contribution to overall score	2.9	1%
No. of BREEAM innovation credits								
available	0					Minimum Standards applicable	N	0
Assessment Criteria	ovelo storago is provid-	d as follows:						Indicative Credits Achieved
where individual of communal compliant	Dwelling Size	One Credit	Two	Credits		1		2
	Churding / 1 d	1		ale con III:				
	Studios/ 1 bedroom	1 per two awellings	1 per	uwelling				
	2-3 bedrooms	1 per dwelling	2 per	dwelling				
Ene 10 Home Office	4 bedrooms	2 per awelling	4 per	aweiling				
No. of BREEAM credits available	1				Avail	lable contribution to overall score	1.4	8%
No. of BREEAM innovation credits available	0					Minimum Standards applicable	N	0
Assessment Criteria							,	Indicative Credits Achieved
Where sufficient space and services will be	e provided to allow occu	upants to set up a home off	ice in a suitable roor	m with adeq	uate ventila	ation	$\Rightarrow$	1
L								

	MATERIALS		Section Weighting: 8%			Indicativ	e Section Score	0.00%	
Mat 01	Environmental Impact of Materi	ials							
	No. of BREEAM credits available	25			Available contribution	on to overall score	4.1	.6%	
		-							
N	o. of BREEAM innovation credits								
	available	0			Minimum Sta	indards applicable	- N	ю	
Assessm	ent Criteria						-	Indicative Cre	dits Achieved
Lin to 25	aredits can be awarded with great	dite calculated using the	Mat 01 calculator tool. Th	a tabla balaw chows	the maximum number of credits avails	blo for oach		Indicative cre	
Up to 25	credits can be awarded, with cred	aits calculated using the	e Mat 01 calculator tool. In	e table below shows	the maximum number of credits available	ible for each	/		5
element									
	Elements		Green Guide Rating c	redits available	Thermal performance	credits available*			
	Roof		5		3				
1	External wa	lls	5		3.8				
	Internal walls (including se	eparating walls)	5		-			1	
1	Upper and Group	d Floor	5		12			1	
	Windows		5		212				
	The full 25 or					-+:f A . (C)		J	
	The full 23 cr	euits represents all or i	the elements containing rei	urbished of existing	materials that meet the Green Guide K	ating of A+(6)		1	
	GG Rating		Points for existing / refu	irbished elements	Points for new	elements			
	A+ (6)		5						
	A+ (5)		4.6						
1	A+ (4)		4.2						
1	A+ (3)		3.8						
1	A+ (2)		3.4						
1	A+		3		3			1	
1	Δ		2		2			1	
1	n		1		1			1	
	В		1		1			1	
1		1	0.5		0.5			1	
	D		0.25		0.25				
	E		0		0			J	
	Where the full 25 credits cannot	be achieved the score	can be 'topped up' with the	ermal performance c	redits. The full number of thermal perf	ormance credits fo	r each element		
	can be achieved when achieving	the minimum U-values	shown below.						
1				Element	5	Minimum U-Va	lue (W/m2K)		
				Roof		0.1	1		
				External w	alle	0.1	5		
			Inter	nal walls (including)	senarating walls)	-			
			inter			-			
				Opper and Grou	na Floor	0.1	5		
				Windows	5	1.4	<u>+</u>		
Mat 02	Responsible Sourcing of Materia	als							
	No. of BREEAM credits available	15			Available contribution	on to overall score	2.5	0%	
l N	o. of BREEAM innovation credits								
	available	0			Minimum Sta	indards applicable	2 Y	es	
<u> </u>					a				
Assessm	lent Criteria							Indicative Cre	alts Achieved
Where n	ew materials are responsibly sour	ced up to 12 credits m	av be awarded where 80%	of new materials for	an element are responsibly sourced. T	he credits		5	
achiovod	are dependent on % of point achi	iovod which is based ur	ay be awarded where boys	a tion lovel of each n	attorial sourced as detailed below:	ne creato			
acmeveu	are dependent on % or point acm	ieveu which is based up	bon the responsible sourcin	ig tier level of each h	laterial sourced as detailed below.				
			Sustainable Pro	ocument Plan (3 BRI	EEAM credits)		Will all new ti	mber used in t	he project be
1		The principal contract	or sources materials for the	project in accordan	ce with a documented sustainable		sourced in	accordance wi	ith the UK
		procurement plan					Governme	nt's Timber Pro	curement
		procurement plan	Alberto the principal control	stor is a Small Come	any lup to 2 PREEAM crodits)		Governme	Vec	curement
		UK	Where the principal contractor is a Small Company (up to 3 BREEAM credits)					Tes	
			Checklist A-9 is	filled in with suppor	ting evidence				
	Table 1	BREEA	AM credits	%	6 of available points achieved				
1			12		≥54%				
1			10		≥45%				
1			8		≥36%	]			
1			6		≥ 27%				
1			4		≥ 18%				
1			2		≥ 9%				
Mat 02	Insulation								
	No. of RREEAM cradits quality in	0			Available contributi	on to overall com	1 **	2%	
1	NO. OF DREEAW CREDITS AVAILABLE	ő			Available contributio	on to overall score	1.3	3/0	
N	o. of BREEAM innovation credits	•			Minimum Sta	ndards annlisable			
	available	U U			Willing Sta	inuarus applicable		10	
1									
Assocre	ent Criteria		1				_	Indicativo Cro	dits Achiovad
	en enena							mencative ere	anonaemeveu
Where a	ny new insulation specified for use	e within external walls,	ground floor, roof and buil	dings services meet	the following requirements:			<u>د</u> ا	
	• • • • •								
1		Requirements					-		
1			Where the	Insulation Index for	new insulation used in the buildings is	>7			
1		1 Cradita	where the						
1		4 Credits	Where Creek C -	do rotingol-'	minod using the Grand Cuide to 15	ation too!			
1			where Green Gui	ue ratings are deteri	mileo using the Green Guide to specific	.au011001			
1		Requirements			· · · · · · · · · · · · · · · · · · ·		-		
1							٦		
1		4 Credits	Where ≥ 80% of the ne	w thermal insulation	n used in the building elements is respo	insibly sourced.			
1									

WATER		Section Weighting: 11%	ection Weighting: 11% Indicative Section Score 0.00%					
Wat 01 Internal Water Use								
No. of BREEAM credits available	3		Avail	lable contributi	ion to overall score	6,60%		
	-							
No. of BREEAM innovation credits available	1			andards applicable	Yes			
Assessment Criteria						Indicati	ive Credits Achieved	
							2	
Where the dwellings water consumption r	neets the following con	sumption benchmarks, or v	vhere terminal fittings meet the following v	vater consumpt	tion standards:	_,		
	1							
Calculated Water Consumption (litres/person/day)	Equivalent term	inal fitting standards	Minimum Standard		Credits			
>150	Typical base	line performance	N/A		- 0			
from 140 to ≤ 150	All showers specified WC's to 'Good' <b>OR</b> Ki	to 'Good' <b>OR</b> All taps and tchen fittings specified to	N/A		0.5			
from 129 to < 140	All showers specifi showers and bat	ed to 'Excellent' <b>OR</b> All hroom taps to 'Good'	BREEAM Very Good		1			
from 118 to < 129	All bathroom and WC 'Good' <b>OR</b> All bathr	room fittings specified to oom fittings specified to	N/A		1.5			
from 107 to < 118	All Bathroom and WC room fittings specified to 'Excellent' OR All Bathroom fittings Specified to 'Excellent' and WC room fittings specified to 'Good' OR All Bathroom fittings, kitchen and		BREEAM Excellent		2			
from 96 to < 107	All kitchen, bathroo room fittings spe bathrooms, kitchens	om, utility room and WC cified to 'Good' <b>OR</b> All and utility rooms specified	N/A		2.5			
< 96	All bathroom fittings WC room, kitchen	pecified to 'Excellent' and and utility room fittings	BREEAM Outstanding		- 3			
NOTE: 'Good' fittings are equival	lent to good practice fit	tings with "Excellent" fitting	as equivalent to best practice fittings (see th	he technical ma	inual for full details			
Hore: bood httings are equita	iene to good procede in			-	induition full declans.	Indic	ative Innovation	
		Exemplary Credit	If the water consumption is less than 80I/person/day			Cr	edits Achieved 0	
Wat 02 External Water Use								
No. of BREEAM credits available	1		Avail	lable contributi	ion to overall score	2.20%		
No. of BREEAM innovation credits available	0			Minimum St	andards applicable	No		
Assossment Criteria		l				Indicati	ivo Crodite Achieved	
Whore the following requirements will be	moti						Ne credits Achieved	
where the following requirements will be	met:						0	
	Requirements:							
	One Credit	Where a compliant rainwa <b>OR</b> Where dwellings have no i	Where a compliant rainwater collection system for external/internal irrigation use has been provided to dwellings. <b>OR</b> Where dwellings have no individual or communal garden space.					
14/-+ 02 14/-+ M-+				-				
No. of REEGAM gradity	1		A	lahla santributi	ion to overall come	2 20%		
NO. OF BREEAIVI Credits available	1		Avai	lable contributi	ion to overall score	2.20%		
No. of BREEAM innovation credits available	0			Minimum St	andards applicable	No		
Assessment Criteria						Indicati	ve Credits Achieved	
Where an appropriate water meter for me	easuring usage of mains	potable water meter has b	een provided to dwelling(s), one credit may	y be awarded		$\rightarrow$	1	
				-				

	WASTE	Section Score 0.0	)%			
Was 01 Hou	usehold Waste					
No. o	of BREEAM credits available	2		Available contribution to overall score	1.20%	
No. of	BREEAM innovation credits			Minimum Chandra and inchis	N-	
available		U		Minimum Standards applicable	NO	
Assessment C	Criteria				Ind	cative Credits Achieved
Where compl	liant recycling and compostin	g facilities are provided	, up to two credits may be	awarded as follows		1
			First Credit - Recycling Facilities			
	Scenario		Internal recycling storage requirements			
			3 internal recycling containers provided where recycling is not sorted post collection			
			1 internal rec			
	Compliant collection scheme in place		Minimum 3			
			Dedicated position in accordance with compliance note 1			
	No compliant collection scheme in place					
	No adequate extern	al storage	Dr			
	No compliant collection s	cheme in place	Minimum 20	itre total canacity, no single container smaller than 7 litre canacity	-	
	Adequate external stor	age provided	IVIIIIIIIIIIIIIIIIIIIIIII	disated pacity, no single container smaller than 7 http://disated.		
		-	De	dicated position in accordance with compliance note 1	J	
					1	
			Sec	ond credit - Composting facilities		
		With ex	ternal space	Without external space		
		Where a compost	ing service or facility is	Where a composting service or facility is provided for kitchen waste		
		provided for g	reen/garden waste			
		Where a compost	ing service or facility is	Where an interior container is provided for kitchen composting waste of at		
		provided fo	or kitchen waste	least 7 litres		
	Where an interior		container is provided for			
		kitchen composting	waste of at least 7 litres			
Was 02 Ref	urbishment Site Waste Mana	agement				
No. o	of BREEAM credits available	3		Available contribution to overall score	1.80%	
No. of	No. of BREEAM innovation credits			Minimum Standards annlicable	No	
	available	-		Mininum Standards appreade	NO	
Assessment C	Criteria				Ind	cative Credits Achieved
Up to three c	redits are available dependin	g on the site waste mar	nagement plan to be imple	mented as follows		1
Projects up to £100k						
	Thurse Condition		Where waste generated through the refurbishment process is managed in accordance with Checklist A-			ndicative Innovation
	Three Credits		9	9		Credits Achieved
		Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place			0	
Exemplary Credit				,		
Projects up to £300k					1	
Three Credits			Where a compliant Level	1		
			Where a compliant Level			
			Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the			
			resource efficiency bench	mark		
	Exemplary Cr	edit	The percentage of non-hazardous construction waste and demolition waste generated by the project			
			has been diverted from la			
			benchmarks			
Pro	Projects over £300k				1	
	First Credi	t	Where a compliant Level 2: Site Waste Management Plan (SWMP) is in place		1	
			First credit achieved			
Second Credit			Non-hazardous construct			
			recourse efficiency benchmark			
			Amount of waste generated against £100 000 of project value is recorded in the SWMP			
Good Practice Waste Benchmarks			Pro-rofurbichmont audit (	f the existing building is completed		
			Pre-returbistiment adult o	n the existing building is completed		
			demonition is included a	s part of the refurbisinient programme, then the addit should also cover		
			demonition materials			
Third Credit			Where the first two credits have been achieved achieved			
Best Practice Waste Benchmarks		where Non-hazardous de				
			the returbishment & demolition waste diversion benchmarks			
			where non-nazardous construction waste generated by the dwellings refurbishment meets or exceeds			
	Exemplary Cr	edit	the exemplary level resou	rce efficiency benchmark		
	Exemplary Cr	edit	the exemplary level resou Where Non-hazardous de	rce efficiency benchmark molition waste generated by the dwellings refurbishment meets or exceeds		
	Exemplary Cr	edit	the exemplary level resou Where Non-hazardous de the exemplary level divers	rce efficiency benchmark molition waste generated by the dwellings refurbishment meets or exceeds sion benchmarks		

POLLUTION		Section Weighting: 6%	Inc	dicative Section Score	0.00%						
Pol 01 NOx Emissions											
No. of BREEAM credits available	3		Available contribution to overal	l score 2.2	5%						
No. of BREEAM innovation credits available	0		Minimum Standards app	licable N	o						
Assessment Criteria				ĺ	Indicative Credits Achieved						
Credits are awarded on the basis of NOx e	missions arising from tl	ne operation of space heatin	g and hot water systems for each refurbished dwelling as follows:		3						
		1	Dry NOx Emissions								
	On	e Credit	≤100 mg/kWh (NOx class 4 boiler)								
	Two	o Credits	≤70 mg/kWh (NOx class 5 boiler)								
	Thre	e Credits	≤40 mg/kWh								
Pol 02 Surface Water Runoff											
No. of BREEAM credits available	3		Available contribution to overal	l score 2.2	5%						
No. of BREEAM innovation credits available	1		Minimum Standards app	licable N	o						
Assessment Criteria					Indicative Credits Achieved						
Where impacts of the refurbishment on surface water runoff are neutralised or where runoff is reduced as a result of refurbishment, up to three credits can be awarded  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2											
	Requirements										
One Credi	•	New hard standing areas in	nust be permeable		[						
Neutral Impact on Su	τ rface Water	If building on to previously permeable area additional run-off must be managed on site									
		Calculations should be carr	ied out by an appropriately qualified professional		Î						
	Requirements										
		Where the criteria needed	for One Credit has been achieved								
OR Second Cr	edits	Where all run-off from the roof for rainfall depths up to 5 mm, have been managed on site using source control									
		methods									
Reducing Run-Off From	m Site: Basic										
		An appropriately qualified	professional should be used to design an appropriate drainage strateg	y for the site	J						
	Requirements										
		Where run-off as a result o	f the refurbishment is managed on site using source control								
		An appropriately qualified professional should be used to design an appropriate drainage strategy for the site.									
		The pack rate of our off or a count of the cofurbidement for the 1 in 100 uppresents has been columned by 75% from the									
OR Three Cre	alts	The peak rate of run-off as a result of the refurbisinment for the 1 in 100 year event has been reduced by 75% from the evisiting site									
Reducing Run-Off From	Site: Advanced	The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in									
Ŭ		100 year event of 6 hour duration has been reduced by 75%.									
		An allowance for climate change must be included for all of the above calculations, in accordance with current best									
		practice (PPS25, 2010).			l .						
	Requirements										
		Where all run-off from the	developed site is managed on site using source control		Indicative Innovation						
		The peak rate of run-off as	a result of the refurbishment for the 1 in 1 year event is reduced to ze	ero.	0						
Exemplary Credit		The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero.									
		There is no volume of run-off discharged into the watercourses and sewers as a result of the									
		refurbishment, for a 1 in 10	00 year event of 6 hour duration.								
		An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010)									
Comments											
Pol 03 Flooding											
No. of BREEAM credits available	2		Available contribution to overal	l score 1.5	0%						
No. of BREEAM innovation credits	0		Minimum Standards ann	licable V	95						
available	, i i i i i i i i i i i i i i i i i i i										
Assessment Criteria					Indicative Credits Achieved						
Where the dwelling is located in a low floo	od risk zone, or where i	n a medium to high flood risl	x zone and a flood resilience/resistance strategy has been implemented	ed, up 📫	2						
to two credits can be awarded as follows:					1						
Minimum Stan	dards	A minimum of t	wo credits must be achieved for this issue at the Excellent and Outstar	nding levels							
Option 1 - Low Flood Risk					1						
Two Credit		Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a low									
annual probability of flooding.											
Uption 2 - weaturn / nigh Hood Kisk Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a medium											
Two Credits		or high annual probability of flooding.									
		Two credits are awarded where as a result of the dwellings floor level or measures to keep water away the dwelling is									
		defined as achieving avoidance from flooding by following Checklist A-10; Decision Strategy Flow Chart.									
		Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is									
		implemented for the dwell	ings in accordance with recommendations made by a Suitably Qualifie	d Building							
		Professional		-							
1											

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